

PERSONALITIES

By George F. Taubeneck

New Year's Eve

And Eddie Mattatal

New Year's Eve was quite pleasant. With JACK SCHAEFER (it was sort of a farewell party) we went out to Northwood Inn, where the incomparable CORINE MUER and her gang hold forth—when they're not entertaining refrigeration conventions and banquets.

Out there we hobnobbed with such notables as R. I. PETRIE, sales manager, and VANCE WOODCOX, advertising manager of Kelvinator. Lots of anecdotes were traded, and among the best of these was one told by Vance about a bright youngster named EDDIE MATTATAL.

Eddie, 12 years old, and his junior partner, Brother Horace, 6, monopolize the selling of *Saturday Evening Posts* out at the Kelvinator plant on Plymouth Rd. Their disarming grins have long been familiar to the employees who pass through the archway that bears the inscription: "I've Thought of a Better Way—Kelvin."

Early last fall MICKEY COCHRANE, heroic manager of the Detroit Tigers, American League baseball champions, paid a visit to the factory. As the Tiger manager completed his call and strolled into the second floor lobby, Eddie rushed up with an armful of "Posts."

"Will you, Mr. Cochrane?" Sales Manager Mattatal asked, shoving the magazines at him. Quickly Mickey autographed one. "How about the rest?" Mr. Mattatal inquired. Cochrane grunted, smiled, and signed.

That evening Mattatal & Mattatal shouted: "Mickey Cochrane—autographed 'Posts'—25 cents each." They were quickly bought.

Christmas Cut-Ups

Christmas time brought more than the average number of clever holiday greeting cards to our desk. We can't begin to list them all in this space, so we'll just describe a few of the most interesting.

The Crosley Radio Corp. and its stations, WLW, WSAI, and W8XAL, sent a card which, when opened, turned out to be a reproduction of WLW's new 500,000-watt transmitter aerial tower, topped by a star which lighted their holiday wishes.

JOHN KNAPP, Norge's vice president in charge of sales, dressed himself up as Santa, with his name spelled out in the building blocks he carried in his pack.

One of the most original came from CAMPBELL WOOD, Kelvinator's director of public utility relations, who worked out a real holiday scene, reindeer and all, using only the season's greetings and his own name.

An old-fashioned sentiment, from PEG and BOB RICHARDS, the last named being publicity man for Westinghouse, shows the couple as they were in 1910, or shortly thereafter, in a childhood photograph done in the tin-type fashion.

JACK CALLAHAN, who heads the refrigeration department out at Briggs, assures us that there are no strings attached to his wishes, but as he flies through the air in his Brigsteal sleigh, we note that he has plenty of strings tied to all his products.

H. M. Robins Co., export factor, expresses—in a folder embellished by pictures of foreign lands—a Christmas sentiment worth repeating. It is:

"The World Is Upward Bound!"

"Not for many years has there been discernable in world affairs so hopeful a situation as today; not for many

years so much evidence of sure, upward progress; such determination on the part of peoples to find peaceful settlements. Differences are many, and acute. Opportunities for major quarrels are legion. But always and everywhere the wish to quarrel is lacking. They are dancing spots before the world's eyes, these trouble breeders. Seen against the sun they disappear. And peoples are more and more determined to see and enjoy the sun.

"The World Is Upward Bound!"

From the boys in the Frigidaire publicity department, JIM IRWIN, FRANK LYONS, and AL HARRISON, came a touching cartoon, showing the whole staff up to their necks in preparations for the 1935 line, but taking time out to wish all a Merry Christmas, nevertheless. The whole perspiring scene is reminiscent of a metropolitan newspaper's city desk (Jim was once city editor of the *Chicago Herald and Examiner*).

Foster D. Snell, Inc., Brooklyn, and staff send best wishes with a card containing all their autographs, and although IRVING J. KNUDSON, Detroit Lubricator's contribution to the refrigeration industry, exclaimed "For crying out loud, here they are again," and pictured himself as a small boy confronted by three department store Santas, he sent the same good wishes.

So, also, did HENRY W. BURRITT, Kelvinator's vice president in charge of sales, MILDRED SHIRLEY SCOTT of Kelvinator's Boston branch, and HELEN and PHIL HARRISON, Newark G-E distributor, in the three most handsome and impressive cards we received.

GLENN MUFLY'S "Christmas Nuts" pamphlet greeting from Springfield, Ohio, really deserves reproduction in full, but we'll have to content ourselves with reporting only what directly concerns the industry, Mr. Muffy's preface reads:

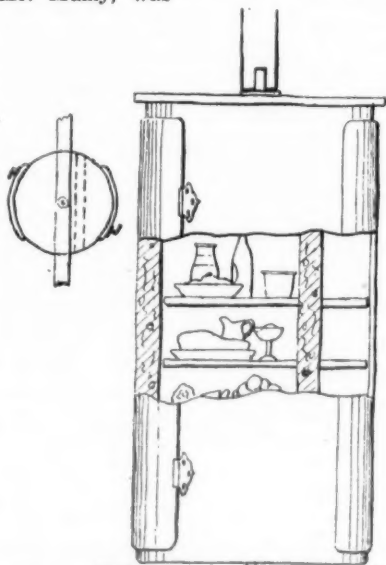
"A lot of friends are asking what I have on the fire in this town of Springfield, Ohio.

"Instead of telling you all about my own inventions, I send you this little collection, from which I defy you to pick a good one.

"They are, fortunately, the children of other men's brains.

"By another Christmas I hope to be ready to tell you about a real invention or two."

The first invention illustrated, says Mr. Muffy, was



"Evidently designed by Andy Gump with a view to keeping his mother-in-law from snitching food at night.

"This refrigerator is provided with a real food-storage space and, at the

rear, with a dummy space and a false front.

"At night the box pivots around upon its vertical axis, bringing the dummy to the front and concealing the real food in the secret chamber."



Of the second invention, shown above, the comment is:

"Tipping shelves make quick work of getting the food out of this cabinet.

"Both of the lady's hands are used in holding the tray (and, the inventor forgot to say, for picking up pieces).

"There's a separate foot pedal for each shelf, hence it's wise to be sure that you don't step on the wrong one."

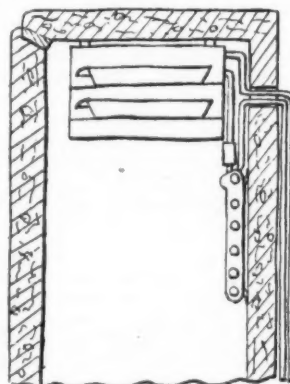


The next world-beater is captioned:

"Pull the string and out pops an ice cube.

"The hood in front of the hostess picks up any stray splashes of water, which are pulled back into the refrigerator by air suction, to be frozen into more ice cubes.

"When properly adjusted the water splashed out of the glass should equal the ice used and thus avoid the need for adding water."



Another carries this comment:

"An improvement in cooling the condenser of a refrigerator.

"Just put it in the box itself and keep a low head pressure.

"Strange, is it not, that none of the engineers invented this one."

And, in closing, the author challenges:

"A grand prize of one non-refillable ice tray is offered for the first correct guess made by a man, woman, or child, listing these inventions correctly under the two headings of 'Ideas taken seriously by inventors' and 'Ideas concocted to be nutty.'"

Which would indicate that some of these ideas really were sent to the U. S. Patent Office. Can you guess which?

F. C. Lovelock

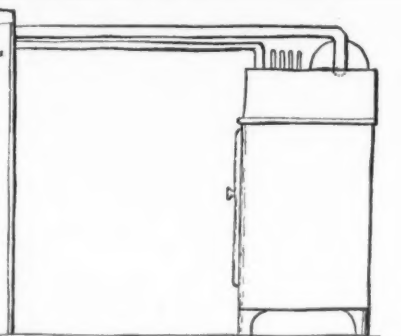
And from F. C. Lovelock, Ltd., of Sydney, Australia, comes the largest card of all, a book-size study in full color of a group of koalas, the famous Australian bears, taken in Koala Park, Sydney. We can imagine now how fine it will look after it's framed.

The card reached us Dec. 24, after having travelled half way around the world. How's that for timing?

Note: Mr. Taubeneck wrote these paragraphs about Mr. Lovelock last week before leaving for an Eastern trip. On Saturday we learned about the death of Mr. Lovelock as reported on page 1. We are letting the story stand as written.

Most any Australian connected with refrigeration—there have been several such visiting American last year—will tell you that Mr. Lovelock is the best-known and most universally respected man in the industry down there.

Just to give you a rough idea of what Mr. Lovelock sells, and whom he represents down there, we'd like to tell you about the whopping big catalog (it's about as thick as the door on a Fairbanks-Morse refrigerator) he sent us recently.



We recount its main divisions: controls, electrical, evaporators, valves and fittings, service tools, miscellaneous, and cabinet supplies.

To give you some idea of the organization's scope, it includes in its listings such English firms as the British Thermostat Co., Ltd., and The Packless Gland Co., as well as the following American concerns:

Grand Rapids Brass Co., Kerotest Manufacturing Co., Bishop and Babcock Mfg. Co., Union Steel Chest Corp., E. Vernon Hill Co., Business News Publishing Co., H. A. Astlett & Co., and Melchior, Armstrong, Dessau Co., one of the largest export houses in the country.

Through its connection with the latter company, Lovelock has also acquired the sole Australian agency for distributing the products of Merchant and Evans Co., Esco Cabinet Co., United Copper Tube Co., Fedders Mfg. Co., Inc., Emery Thompson Machine and Supply Co., Detroit Lubricator Co., The Automatic Reclosing Circuit Breaker Co., Barostat Co., C. J. Tagliabue Mfg. Co., Penn Electric Switch Co., Alco Valve Co., Inc., Henry Valve Co., U. S. Gauge Co., Imperial Brass Mfg. Co., Turner Halide Co., Ansul Chemical Co., Standard Gas Equipment Corp., Howell Motor Co., A. C. Horn Co., Superior Carbon Products, Inc., and Clifford Mfg. Co.

The company offers a complete technical service, available to all its clients, and designed to step in when one of the gadgets it distributes comes to grief and remedy the situation as quickly as possible.

As the catalog says: "... the thousand and one gadgets which the installation man is called upon to use at one time or another, all have their special problems, and it may be that

at some time or another you will get into trouble through their use. When that time happens, either we know the reason why already, or else we can find it out."

OUR Ted Quinn

Believe it or not, but TED QUINN is now on the payroll of ELECTRIC REFRIGERATION NEWS and a member of the editorial department.

Now, don't laugh. Of course the TED QUINN who is vice president of the General Electric Co.—and who is pictured at the bottom of this page—has not gone to work for the Business News Publishing Co. We have a TED QUINN of our own. No foolin', that's his name.

Our Mr. Quinn comes to ELECTRIC REFRIGERATION NEWS from the *St. Louis Post-Dispatch* where he was a reporter and did work on the copy desk.

Many of his assignments on the *Post-Dispatch* sent him out into the state of Missouri, to small cities and towns; which experience should fit him admirably for getting dealer interviews.

Before his *Post-Dispatch* days Ted was a reporter on the *Memphis Press-Scimitar*, and previous to that he was editor of the *Carlyle Democrat*, a country weekly which holds forth down in southern Illinois—home country of the writer of this kolyum.

Guess we might as well tell you the rest of it. Ted belongs to the University of Illinois journalistic dynasty which has held sway around these diggins for some years.

Back in 1931-32 Ted was editor-in-chief of *The Daily Illini* down in Champaign, Ill. His first assistant was none other than ELSTON D. HERRON, who bore the title of chief news editor of the paper.

These two young men were inducted into those respective positions largely because they were recommended by PHIL REDEKER and JACK ADAMS, who bossed *The Daily Illini* in 1930-31, and who are now managing editor and production manager, respectively, of ELECTRIC REFRIGERATION NEWS.

So you see we know all about TED QUINN, and are mighty happy to have him here.

Ted is an Irishman with a sly smile and a quick wit who will have you liking him in no time at all.

He is a keen and accurate observer, isn't easily sold a bill of goods, recognizes something phoney when he smells it, likes to work, is a good writer, and thinks that a plain, unadorned fact is just about the most beautiful thing in all creation.

Referring again to the University of Illinois journalistic dynasty in the offices of the News, perhaps it should be mentioned that Publisher F. M. Cockrell graduated (in electrical engineering) from that institution over 20 years ago and that Howard W. Mateer, our erstwhile advertising manager, received a U. of I. diploma (also in electrical engineering) a couple of years later.

The Illinois graduates on the editorial staff include the following past and present members of the editorial staff: Phil B. Redeker, John T. Schaefer, John R. Adams, Elston D. Herron, Gertrude Stanton, Ted Quinn, and the writer of this kolyum.

Having been trained in the same school and being able to talk the same language has helped the members of the staff to achieve a real unity of purpose in doing a job. In addition, there has been a true spirit of comradeship which most organizations find it difficult to develop except after years of effort.

Being located in Detroit has meant a close contact with activities at the University of Michigan, with the result that the Ann Arbor school has become another recruiting ground for staff members. Geo. N. Congdon, A. J. Cutting, Frances McNamara, Betty Knight, and Jean Adams are all products of the U. of M.

One Familiar View of Ted Quinn, Plus a Couple When He Wasn't Looking



(1) T. K. Quinn, vice president of the General Electric Co., presses a button and makes things happen downstairs. (2) Oh! Oh! How did this one get in there? (3) "All right, young man: What's on your mind?"

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New York Code Limits Amount Of Refrigerants

Proposed Code Effects Air-Conditioning & Multiple Systems

NEW YORK CITY—Specific restrictions on the amount of refrigerant which may be used in direct expansion air conditioning, and a licensing requirement for all refrigerating systems (except household) operating in the City of New York are embodied in the new refrigeration code proposed by the New York Fire Department.

The proposed code, in its present state of revision, is published in full on page 14 of this issue of *ELECTRIC REFRIGERATION NEWS*. Criticisms or endorsement of the code were still being received early this week by C. K. Michaels, engineering inspector, room 1100, Bureau of Combustibles of the New York Fire Department.

The code prescribes permit fees ranging from \$1 per year for systems with less than 6 lbs. of refrigerant up to \$20 per year for large systems containing over 1,000 lbs., and requires that everyone installing or servicing refrigerating systems must take out a certificate of qualification from the Fire Commissioner.

It also specifies that "No refrigerating system containing more than 100 lbs. of refrigerant shall be operated in any building except under the personal supervision, direction, or control of either a duly licensed engineer or a person who has obtained a certificate of qualification to operate such a system from the Building Department."

Section 222 on air conditioning rules out ammonia and sulphur dioxide as refrigerants for air conditioning, and restricts direct expansion air-conditioning systems to 10 lbs. of refrigerant in public buildings, and 200 lbs. in homes and business establishments.

H. W. Sweatt Elected M-H President

MINNEAPOLIS—New president of the Minneapolis-Honeywell Regulator Co. is H. W. Sweatt, former vice president and general manager, according to a recent announcement made by the board of directors.

Mr. Sweatt succeeds M. C. Honeywell, who has been president since the merger of the Minneapolis Heat Regulator Co. and the Honeywell Heating Specialties Co. in 1927. Mr. Honeywell is now chairman of the executive committee.

The new president has been identified with Minneapolis-Honeywell for more than 20 years, acting in various capacities throughout the plant. He will continue to act as general manager.

Other officers of the company are: W. R. Sweatt, chairman of the board; C. B. Sweatt, vice president in charge of sales; W. L. Huff, vice president and treasurer; and C. C. Buckland, secretary.

Subsidiary to Handle Armstrong Products

LANCASTER, Pa.—Effective Jan. 1, 1935, all Armstrong products formerly sold by the Armstrong Cork Co. and the Armstrong Cork & Insulation Co. will be distributed by a subsidiary company to be known as "Armstrong Cork Products Co." according to an announcement issued at the executive offices of the company here.

It was emphasized that the change in the name of the sales organization does not in any way alter Armstrong's distribution policies or personnel. All corporate functions other than marketing will be continued under the name, Armstrong Cork Co., the announcement stated.

Broome Gets New York Leonard District

DETROIT—The Broome Distributing Co., Binghamton, N. Y., has been appointed distributor for Leonard refrigerators in the central New York state territory, according to Godfrey Strelinger, general sales manager of the Leonard Refrigerator Co.

K. C. Distributors Sign Agreement To End 'Spiffs'

KANSAS CITY—In an effort to stabilize the market, prevent destructive competition, conserve profits, and protect the public, electric refrigeration distributors of this city have agreed to eliminate "spiffs" (special bonuses offered to salesmen of department stores and dealers handling more than one make to push a particular line of refrigerators), the Electric & Radio Association of Kansas City reports.

The following 13 distributors signed the agreement:

Apex Rotarex Corp., Apex; Glasco Electric Co., Crosley; Jenkins Music Co., Fairbanks-Morse and Ice-O-Matic; Frigidaire Corp., Frigidaire; Midwest Elec. Appliances, Inc., General Electric; Townley Metal & Hdwe. Co., Gibson and Spanton; Midwest Grunow Co., Grunow; General Electric Supply Corp., Hotpoint; Richards & Conover Hdwe. Co., Kelvinator; Artophone Corp., Leonard; Moser & Suor, Inc., Norge; Stewart-Warner-Alemite Co., Stewart-Warner; Columbian Electrical Co., Westinghouse.

Following is text of the agreement:

For Exclusive Dealers

Prize contests shall be optional and limited to 60 days duration.

For Non-Exclusive Dealers

1. There shall be no national prize contests of any kind. No gratuities of any kind shall be paid or given

(Concluded on Page 2, Column 1)

Department Store Men To Study Appliance Merchandising

NEW YORK CITY, Jan. 15—Prominent figures in the refrigeration and electrical appliance field will discuss current problems in electrical merchandising at the electrical sessions of the National Retail Dry Goods Association to be held this afternoon, tomorrow morning, and Thursday afternoon. The program has been revised from the original schedule published in the Dec. 26 issue.

Herschel Lutes, merchandise manager of the J. L. Hudson department store in Detroit, and chairman of the electrical committee of the N.R.D.G.A.,

(Concluded on Page 2, Column 5)

Jack Pearl to Star on Frigidaire Program

NEW YORK CITY—Frigidaire Corp. will sponsor Jack Pearl, comedian of radio, stage, and screen, in a new series of programs over the WABC-Columbia network starting Feb. 13.

The series, presenting the former "Baron Munchausen" in the new character of "Peter Pfeiffer," will be heard every Wednesday from 10:00 to 10:30 p. m. E.S.T. Pearl will be assisted, as before, by Cliff Hall, familiarly known as "Sharlie."

Hyman Reader Appointed Crosley Distributor

HOUSTON, Tex.—Hyman Reader, the California jeweler who entered refrigeration three years ago selling Crosley Shelvadors in his jewelry store at Taft, Calif., has been appointed distributor for Crosley radios and refrigerators for Houston and surrounding territory.

Mr. Reader's store in California is continuing in the Crosley business and is being managed by his father and brother, although Mr. Reader still retains a financial interest in it.

Barber & Ross Discontinues Retail Operations

WASHINGTON, D. C.—Barber & Ross, Washington distributor for Kelvinator, recently decided to discontinue with all retail departments and become exclusively wholesale.

Advertising funds for Kelvinator and other electric appliances will thus be spent to plan, merchandise, and work entirely in behalf of the dealer, Barber & Ross officials declared.

Commercial Cabinet Code Now Applies To Retail Dealers

WASHINGTON, D. C.—The NRA has approved an amendment to the code of fair competition for commercial refrigerator manufacturers whereby any dealer, jobber, or other form of merchandising agency handling commercial refrigerator products is obliged to observe the fair trade practice provisions of the code (Articles VII and VIII) unless such agency is wholly independent of the manufacturer of these products.

The amendment probably applies to the schedule of carrying charges which were added to the code (published in the Aug. 8 issue of *ELECTRIC REFRIGERATION NEWS*) although no official interpretation has been made as yet.

If the retailer is not in any way financed by the manufacturer, buys outright for cash, takes full title to the goods, carries his commercial paper (does not "sell" it to the manufacturer)

(Concluded on Page 2, Column 1)

Final Closing Dates Are Announced for Vol. 1 of Directory

DETROIT—Next Sunday, Jan. 20, marks the official closing date for Volume I of the 1935 *REFRIGERATION DIRECTORY AND MARKET DATA BOOK*, published by Business News Publishing Co., 5229 Cass Ave., Detroit, which also publishes *ELECTRIC REFRIGERATION NEWS*. That date is the deadline for the acceptance of free listings in the Alphabetic Section, which will go to press Monday, Jan. 21.

There will be more time, however, to get additional listings and corrections into the other sections, according to the printing schedule for the *DIRECTORY*. The Trade Name Section will go to press Thursday, Jan. 24, and the Geographic Section will go to press one week later, Thursday, Jan. 31.

Tuesday, Feb. 5, will be the last day that new copy for reserved advertising space can be accepted for publication (without submitting proof) in the Classified Products Section. Wednesday, Feb. 6, marks the last day that corrections can be made in advertisements for the Classified Products Section, as this section of the *DIRECTORY* will go to press Feb. 7.

Printing schedule for the 1935 *REFRIGERATION DIRECTORY* (Vol. I) is as follows:

Sunday, Jan. 20—Official closing date.

Monday, Jan. 21—*Alphabetic Section* goes to press. Listing all manufacturers of refrigeration equipment, parts, materials, supplies, and accessories.

Thursday, Jan. 24—*Trade Name Section* goes to press.

Thursday, Jan. 31—*Geographic Section* goes to press. In this section will be listed manufacturers, consulting engineers, manufacturer's agents, independent service companies, and other organizations whose service is local rather than national. Names of officers and department heads, complete list of products, telephone number, location of factories and branches are given in this section. Note: Each company is entitled to one listing under location of principal office. Additional geographic listings will be made, if desired, at a cost of \$1 per listing.

Tuesday, Feb. 5—This will be the last day that new copy for reserved space can be accepted for publication (without submitting proof) in the Classified Products Section.

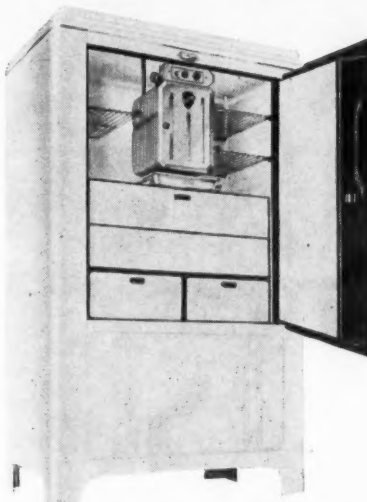
Wednesday, Feb. 6—This will be the last day we can make corrections in advertisements for the Classified Products Section.

Thursday, Feb. 7—*Classified Products Section* goes to press. In this section, all manufacturers are listed under product classifications. Most companies will want their advertisements in the section adjacent to the free listings.

Monday, Feb. 11—All forms of Volume I go to the bindery. This will be the last day for acceptance of completed printed inserts which may be bound in between forms or sections of the book.

Wednesday, Feb. 20—First copies of Volume I will go in the mail to advertisers and paid-in-advance subscribers.

Single Model



Interior view of Major's '35 model, showing the rearranging shelf in upright position against the front of the shelves.

Graybar to Distribute Frigidaire Models in New York State

ALBANY, N. Y.—Appointment of the Graybar Electric Co., Inc., as distributor for northeastern New York state with headquarters in Albany was announced last week by Frigidaire Corp., subsidiary of General Motors Corp.

The Graybar Co. will distribute in this area Frigidaire household refrigerators, commercial refrigeration equipment and air-conditioning units through a retail dealer organization made up of independently owned business houses and department stores in virtually every community, the announcement stated.

Existing Frigidaire headquarters here will be taken over by Graybar to house its new activity and Walter B. Cooke, who has been Albany district manager for Frigidaire, will assume the management of the Frigidaire division of Graybar. The Frigidaire division of Graybar will be operated separately from the other Graybar wholesaling operation here.

Principal dealers and executives of the Albany Frigidaire and Graybar organizations met here recently at a luncheon at which T. A. Farrell, regional manager for Frigidaire Corp., and D. H. O'Brien, general merchandising manager, and W. B. De Forest, sales manager in addition to Mr. Drury of the Graybar organization spoke.

G-E Radio Program Aids FHA Drive

CLEVELAND—Dedicated to the American home, a new radio program was launched Sunday afternoon, Jan. 13, over a nation-wide NBC network, under the sponsorship of the General Electric Co., which turned the time over to the Federal Housing Administration in the interest of better housing and home modernization. It has been announced by Maxon, Inc., G-E advertising agency.

Each week an outstanding American will appear on the program, while other features will be talks on "What Home Means to Me." These brief talks will be given by people in various walks of life—such as a marine lighthouse keeper or a miner. They will be given a touch of the dramatic by having the broadcasts made by remote control from a lighthouse at sea or from a mine far beneath the earth's surface.

West Elected President of Philadelphia Group

PHILADELPHIA—At the election of officers for 1935, C. K. West, vice president of General Electric Co., was elected president of The Electrical Association of Philadelphia for 1935. Mr. West, who previously served as vice president, succeeds H. P. Liversidge, vice president of the Philadelphia Electric Co., who served as president for four terms.

George E. Whitwell, vice president in charge of sales of Philadelphia Electric Co. was elected vice president; M. E. Arnold, of M. E. Arnold Co., secretary; and Philip H. Ward, Jr., of Ward Electric Co., treasurer.

Major Will Sell 1 Model Only With New Policy

Franchise Will Be Given To But One Store in Each City

CHICAGO—Major Appliance Corp. of this city is announcing a new policy on refrigeration this year, the policy being briefly the manufacture of one model only, sold to one store in each city, at one net price.

The "one store in one city" means just that—the granting of a single franchise in any city, no matter what the size, according to H. F. MacGrath, vice president in charge of sales of Major Appliance Corp.

The single Major model is a refrigerator with 7.96 net cu. ft. food storage capacity, and adorned with a number of new features.

Chief among these features is an innovation in the form of the "Tempo-Shelf," a porcelain tray that fits into the front of the cabinet interior like a front to a special compartment, but which in reality is brought down to a horizontal position for use as a rearranging and handy shelf when the refrigerator door is opened (see picture on page 2 of this issue).

Another feature new for Major is two wire drawers with porcelain

(Concluded on Page 2, Column 4)

New Riley Line of Parts Announced

By John T. Schaefer

DETROIT—Frank B. Riley, president of the Riley Engineering Corp., has just announced an extensive new line of refrigeration parts and accessories, including automatic and thermostatic expansion valves, a combination high-side float valve and liquid receiver, an oil separator with automatic return, water regulating valves, an automatic suction pressure throttling valve, a two-temperature valve, packless valves, fittings, compressor valves, filters, dehydrators, acid neutralizers, compressor seals, and service tools.

Bearing the trade name "Blue Ribbon Products," the new accessories are being manufactured by the American Injector Co., associate firm of Riley Engineering Corp. Offices are maintained at the American Injector

(Continued on Page 15, Column 1)

N. J. Public Service Sold 3,233 Electrolux Units

NEWARK—Sales of Electrolux gas refrigerators by the Public Service Corp. of New Jersey during the past year (up to Dec. 15, 1934, inclusive) totaled 3,233 units, a gain of 1,293 units over the same period of 1933, it was announced at a recent meeting of salesmen of the utility in this city. Prizes earned during an Electrolux gas refrigerator sales campaign conducted from July 2 to Dec. 8, inclusive, were awarded to successful salesmen. In addition, prizes were given to the leaders among employees selling Electrolux gas refrigerators during the past year (up to Dec. 15, inclusive).

Included among the speakers at the meeting were F. E. Sellman, vice president of Electrolux Refrigerator

(Concluded on Page 2, Column 3)

Chest Model Included In Sanitary's Line

FOND DU LAC, Wis.—Included in the 1935 line of Sanitary Electric Corp. electric refrigerators is the Sanitary Electric Chest, a lift-lid type refrigerator with a gross food storage capacity of 2.18 cu. ft.

The unit is 35½ in. high, 28 in. wide, and 19 in. deep, and has a food storage compartment 12½ in. high, 23½ in. wide, and 13½ in. deep. It is also equipped with a vegetable basket and two ice trays, with a capacity of 42 cubes or 3 lbs. of ice at a single freezing.

Exterior finish is in Sanitary "Mod-White" and the Sanitary refrigerating unit is used. The cold control panel is located outside on the front of the box.

K. C. Distributors Reach Agreement Eliminating 'Spiffs'

(Concluded from Page 1, Column 2) directly or indirectly to dealers or any of their employees, except as described below.

2. Each distributor may accumulate at his discretion a sales prize contest fund amounting to a maximum of one-half of 1 per cent of the yearly volume of the dealer, this fund to be available to such dealer for prize contests exclusively.

3. Such money as is accumulated for sales contests shall be disbursed only as earned and when supported by proper evidence from the dealer that such money has been spent for sales contest purposes. The accumulation of this money shall be upon a 12-month calendar year basis, and any amount unspent at the end of the 12 months shall be retained, and a new account established for each individual dealer.

4. Payments of such prize contest funds by the distributor shall not be oftener than once a month, and shall be made through the store management and not direct to the retail salesman, supervisor, or department manager.

5. Each distributor, participating on the basis outlined above, will require from such dealer an agreement that all contests promoted for the sales organization of that dealer shall be on an equal percentage of sales basis for all household electric refrigerators handled by such dealer and sold to him by participating distributors.

Code Change Effects Commercial Dealers

(Concluded from Page 1, Column 3) turer), is not subject to dictation of policy by the manufacturer, receives no allowances for his operations, it would be assumed that he is independent and not subject to the amendment, according to an interpretation made by the Commercial Refrigerator Manufacturers Association.

Text of the amendment is as follows:

AMENDMENT No. 9

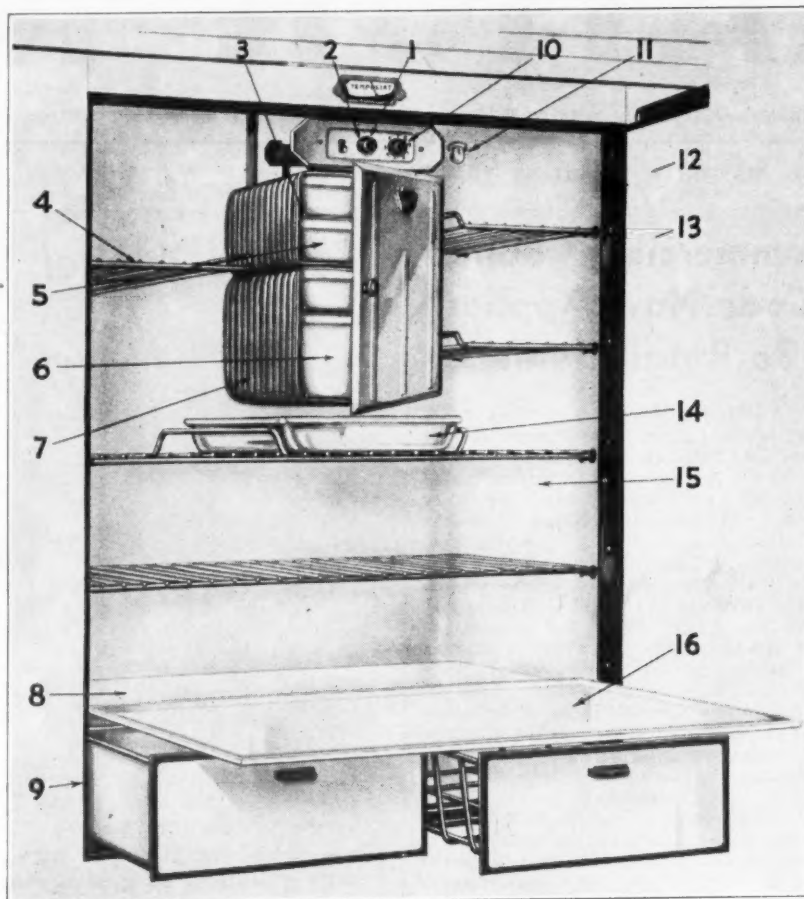
"Add to Article VII the following Rule 18:

"Rule 18. No member of the industry shall sell to or through any distributor, dealer, jobber, agent, representative or other type of distribution outlet, that does not agree to comply with the provisions of this Article VII and Article VIII of this Code. Approval by the President or his authorized agent of a Code for such distributors, which would prohibit such distributors from entering into such agreement, would terminate the operation of this Rule."

G-E Flat-Top Replica Is Used for Phone Booth

KINGSTON, Jamaica—A replica of General Electric flat-top refrigerator on a larger scale is being used for a phone booth by the G-E dealer here.

Features of Major's Model



In the picture above, No. 8 is the porcelain Tempo-shelf in horizontal position ready for use. No. 9 is one of the two food baskets. No. 6 points out the double depth ice tray; No. 2 is the motor overload protector.

Hostess Corp. of Canada Issues Recipe Book

TORONTO, Canada—Hostess Corp., Ltd., manufacturer of the Hostess electric refrigerator, has just published a 63-page recipe book which it sells for 65 cents.

The "Hostess Blue Book" as it is called was prepared under the direction of Jay Margaret Laws, director of Home Economics, Hostess Corp. In the preface she declares that the recipes given are all "practical," and that they have been tested by usage.

The "Blue Book" is distinguished by its illustrations in color, and by photographs which show how a table should be set for various meals such as formal luncheons, buffet suppers, informal teas, etc.

10 Fretz Men Get G-E Institute Diplomas

PHILADELPHIA—Ten air-conditioning engineers working for the S. S. Fretz, Jr., Inc., General Electric air-conditioning dealer here, recently received diplomas and pins from the General Electric Air Conditioning Institute for having completed a forty weeks' study in the fundamentals of air conditioning.

N.J. Public Service Sales Of Electrolux Increase

(Concluded from Page 1, Column 5) Sales, Inc.; Percy S. Young, in charge of finance; Henry P. J. Steinmetz, general sales manager, Electric & Gas Co.

Prizes were awarded to the following men who sold more than 60 Electrolux gas refrigerators during 1934: L. C. O'Neil, Englewood, 103; George Randall, Orange, 65; W. N. Serio, Newark, 64; C. C. Stouffer, Newark, 63; A. F. Purcell, Jersey City, 61.

Team leaders whose districts made their quotas in the Christmas campaign received prizes also. They were O. L. Altman and William Castle of Newark; R. F. Cunningham of Englewood; B. V. Benson of Jersey City; W. P. O'Neill of Hackensack; J. A. Kosch of Ridgewood; E. G. Kent of Summit; and F. S. Breese of Morristown.

Division winners were: Essex, W. N. Serio and C. C. Stouffer; Hudson, A. F. Purcell; Passaic, Frank Zabriskie; Bergen, L. C. O'Neil; Central, George Vowteras and E. I. Darman; Southern, A. J. Hewett.

Kelvinator's Industrial Association Promotes Employees' Welfare

DETROIT—Kelvinator Industrial Association, under the direction of the personnel department, is strictly an employees' association designed to offer new and old employees athletic, recreational and personal benefits.

Aims of the association are listed as follows:

1. To pay all employees an adequate wage for services rendered.
2. To maintain reasonable hours of work and safe working conditions.
3. To provide as far as possible continuous employment consistent with shop conditions.
4. To place employees in the kind of work best suited to their abilities.
5. To help each individual to progress in the company's service.
6. To aid employees in time of need.
7. To encourage savings and thrift.
8. To establish social, athletic, and recreational activities.
9. To have an open door to the office of the director of industrial relations so that each employee may feel free to discuss any problem which may be troubling him.
10. To establish as much as possible a spirit of friendliness throughout the organization.

All income from the plant stores is turned in to the treasurer of the industrial association to be used by the employees' relations committee to alleviate distressed conditions among the employees.

Among the special benefits provided for employees are an educational plan, group life insurance, automobile insurance, special golf club rates, and a medical plan. A savings or thrift plan and a retirement fund plan also are proposed.

The mouthpiece of the industrial association is a plant magazine called "Cold Craft," published monthly by and for the employees.

Major Announces New Model and Policy On Refrigeration

(Concluded from Page 1, Column 5) fronts placed on the bottom of the food compartment. The "Tempostat" (an indicator on the exterior of the cabinet which shows whether or not proper interior temperatures are being maintained) is retained in this year's model.

Other embellishments of the cabinet interior include ice cube tray release, flip shelf, fast freezing tray, nine point cold control, interior electric light. Cabinet liner, of course, is of porcelain.

Condensing unit used is a two-cylinder sulphur dioxide job with a capacity of 145 lbs. I.M.E. at 350 r.p.m. Compressor is powered by a 1/2 hp. General Electric capacitor-type motor. A Bush finned-tube condenser is used.

The cabinet lines are enhanced by a horizontal paneling effect. Exterior finish is Dulux. The cabinet is insulated with three inches of Dry-Zero insulation throughout.

Key specifications are:

Model No.	8
Cabinet Specifications	
Overall dimensions (in.)	
Height	64
Width	35
Depth	21
No. of doors	1
Storage Capacity	
Gross food storage (cu. ft.)	8.5
Net food storage (cu. ft.)	7.96
No. of shelves	4
Total shelf area (sq. ft.)	16.54
Ice Cube Trays	
No. of trays	4
No. of cubes produced	140
Weight of cubes (lbs.)	11 1/2
Thickness of Insulation (in.)	
Top	3
Sides	3
Bottom	3
Compressor Specifications	
Compressor capacity I.M.E. (lbs.)	145
Motor size (hp.)	1/2
Compressor speed (r.p.m.)	350
Compressor bore (in.)	1 1/8
Compressor stroke (in.)	1-7/16
No. of cylinders	2
Refrigerant in system (oz.)	24
Cabinet Materials	
Make of cabinet	Seeger
Material used for frame	Steel
Finish	
Cabinet finish (exterior)	Dulux
Cabinet finish (interior)	Porcelain
Hardware	
Process of manufacture	Casting
Basic metal of hardware	Brass
Finish of hardware	Chromium
Compressor	
Type of system	Conventional
Type of compressor	Reciprocating
Compressor drive	V-belt
Location of compressor	Below
Motor	
Type of motor	Capacitor
Refrigerant	
Refrigerant used	Sulphur dioxide
Condenser	
Make of condenser	Bush
Type of condenser	Finned

Utility Holds Meetings For Club Women

DENVER—An important activity in the sales promotion program of the Rocky Mountain Electrical Association, under the direction of Gaylord B. Buck, who won the McGraw medal for his program of business stimulation and recovery for electrical dealers, is the series of 200 meetings of 25,000 to 30,000 club women.

At the meetings, which will be held in an all-electric kitchen, electrical cookery, the new study and reading lamp, and other electrical devices used in the home are being demonstrated.

Kelvinator Home Economists Meet Next Monday

DETROIT—Annual home economics convention of Kelvinator Corp. is to be held here Jan. 21 to 23, according to Miss Polly Peacock, director of home economics.

One hundred delegates are expected to attend the convention. Arrangements have been made to secure internationally known home economists as guest speakers, Miss Peacock stated.

Culbertson Will Head McCray N.Y. Branch

KENDALLVILLE, Ind.—Harry E. Culbertson, former branch manager of McCray Refrigerator Sales Corp. at Kansas City, has been shifted to the position of manager of the New York City branch, succeeding R. Johnston. Mr. Johnston is now in charge of the construction account in New York.

Kelly & Callahan Will Sell Refrigerators

WINCHESTER, Mass.—Kelly & Callahan, Inc., recently filed incorporation papers and plans to deal in refrigerators and oil burners here.

Appliance Retailing Will Be Discussed By N.R.D.G.A.

(Concluded from Page 1, Column 2) declared that members of the committee "hoped to make the whole convention electrical appliance-conscious."

The program for the electrical session of the convention is as follows:

Subject of this afternoon's session will be: "Is it sound business and good finance to sell refrigerators on the winter finance plan, or practically no down-payment and very light instalments—long term paper?" With William Crawford, Commercial Credit Co., Cleveland, and Charles M. Armstrong, president Redisco, making the presentation.

There will then be a general discussion on the floor in which it is expected that representatives of GMAC and others will take part. Discussions from the stores' viewpoint will be led by Kenneth Richmond, comptroller of Abraham & Straus, and Edgar I. Amthor of L. Bamberger & Co.

Theme of tomorrow morning's session is "Fitting the specialty operation into the department store," with the following addresses scheduled:

"Making the sales force effective—training supervision, demonstrations, leads, follow-ups, closing, remuneration of salespeople, etc."—L. R. Boulware, Easy Washing Machine Co.

"Methods of increasing gross margin—competition, private vs. national brands, trade-ins, specials, mark-ups, objectives, etc."—Sam Einstein of G. Fox & Co.

"Is outside selling desirable for department stores—are home demonstrations—is direct canvassing?"—James Parker, Weiboldt Stores, Chicago.

"Putting teeth in promotions—human interest displays, sales contest and prizes, aggressive publicity, showmanship, etc."—John B. Bannigan, Quackenbush Co., Patterson, N. J.

"How can department stores dominate the electrical merchandising picture?"—Julien Elfenbein, House Furnishing Review.

The Thursday morning session is labeled, "What are the volume possibilities in electrical merchandising through department stores," with the speaker's lineup consisting of several men well-known in refrigeration merchandising circles. Program is as follows:

"The present market available for department stores—its magnitude and enormous possibilities."—Ralph C. Cameron, General Electric Co.

"What is the most probable trend for the future in merchandising refrigeration?"—Charles T. Lawson, Frigidaire Corp.

"At present, what barriers confront the manufacturer who selects department stores as his outlet?"—V. E. Vining, Westinghouse Electric & Mfg. Co.

"Future department store operations in appliances, vs. present factory branch direct sales operations. Are stores changing in their attitude towards appliances?"—Wright Griffin, Rex Cole, Inc.

In the open discussion that will follow the chairman will present the results of a recent questionnaire on electrical selling in stores.

'34 Sale of Oil Burners Best Since '30

WASHINGTON, D. C.—Figures compiled through October by the U. S. Bureau of Census on 149 manufacturers indicate that 1934 will be the best year for domestic oil burner sales since 1930.

In the first 10 months of 1934 new orders were received by the reporting manufacturers for 77,723 domestic oil burners and oil fired units, an increase of 17.3 per cent over the 66,425 orders in the same period of 1933.

Shipments in the first 10 months of 1934 reached 75,499 units, up 14.2 per cent from the year before.

WILL THE DEALERS
who are conscious of the value of Artificial Food Display and who want to know how to obtain a full Refrigerator Display, for less than \$5.00, inquire from their source of refrigerator supply, or by writing the
CINCINNATI DOLL CO.
Artificial Food Department
311-313 E. 12th St., Cincinnati, Ohio.

TEMPRITE Instantaneous Cooling

"The leading cooler for water, beer and other beverages"

Write for Catalog

Temprite Products Corporation
(Formerly Liquid Cooler Corporation)
1349 Milwaukee East • Detroit

Copeland

DEPENDABLE ELECTRIC REFRIGERATION

PROVEN

There is and can be no argument as to the merit of Copeland Commercial Condensing Units. Their record in service, all over the world amply testifies to their efficiency and dependability under all conditions of usage.

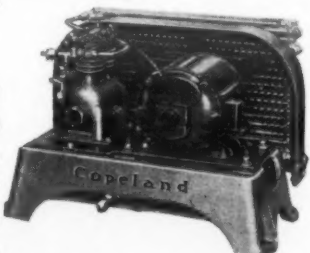
Day after day, orders are given for new Copeland units because of satisfaction with previous installations and it is this repeat business which makes the work of distribution both pleasant and profitable.

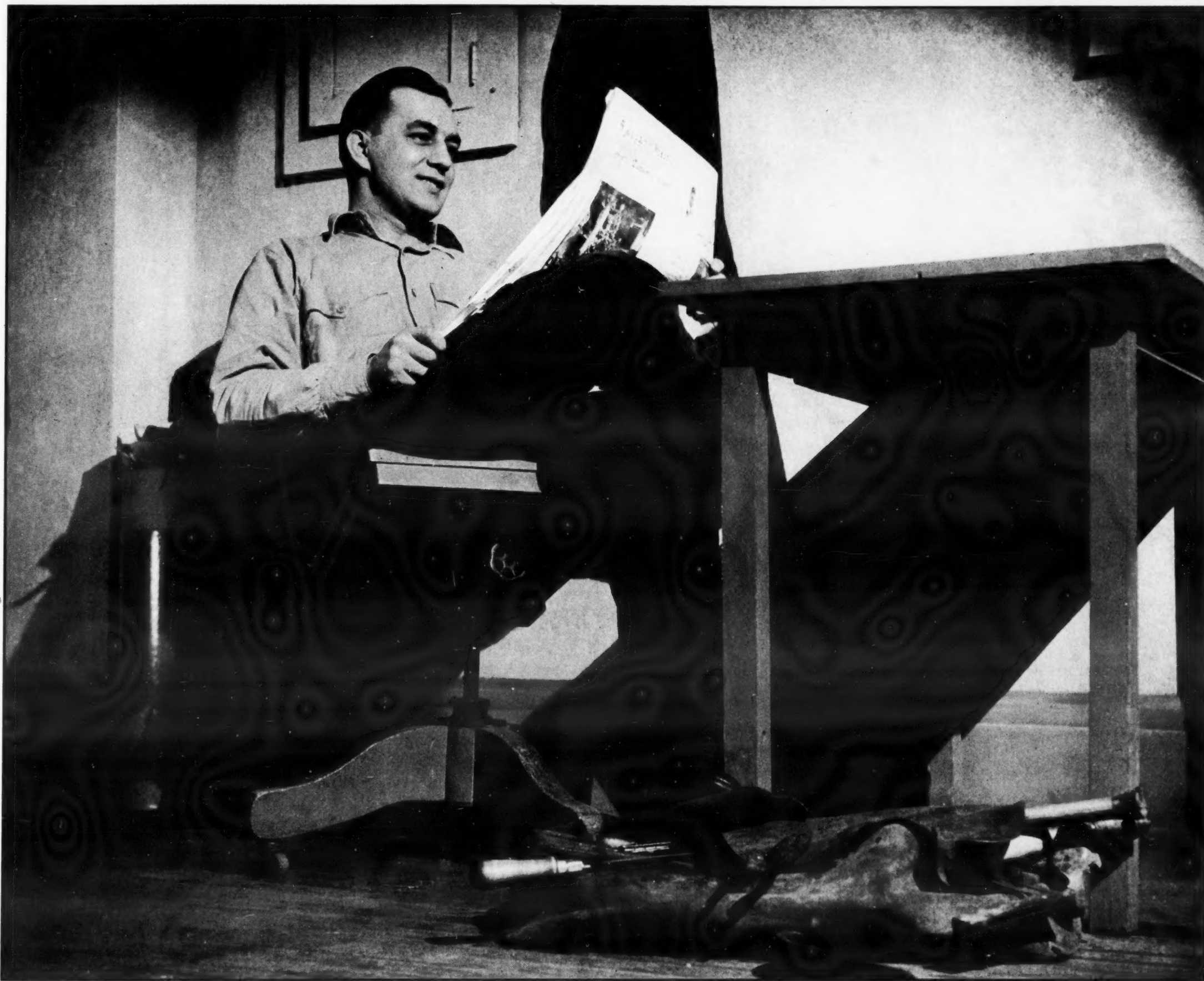
Every season of the year is a selling season . . . There is no lull in business activity on account of weather conditions . . . Refrigeration is universally accepted as a necessity and the sales effort required is concerned with recommending and extolling the virtues of definite units for specific jobs.

Copeland offers to aggressive merchandisers an opportunity to cash in on proven performance in exclusive territories and welcomes inquiries from those who can qualify.

Write today for details.

COPELAND REFRIGERATION CORP., Detroit, Mich.
Main Office and Factory—Holden at Lincoln Ave.
Division of DALLAS E. WINSLOW, Inc.





THE FORGOTTEN SERVICE MAN!

THE GENERAL ELECTRIC Monitor Top cut refrigerator servicing costs 75%. Expensive dealer service departments became unnecessary. Even where thousands of General Electric refrigerators have been in use for years, only a skeleton organization is required. In one territory where there are over 150,000 Monitor Tops in operation every day, many over five years old, the service required averages less than 5 minutes per machine per year!

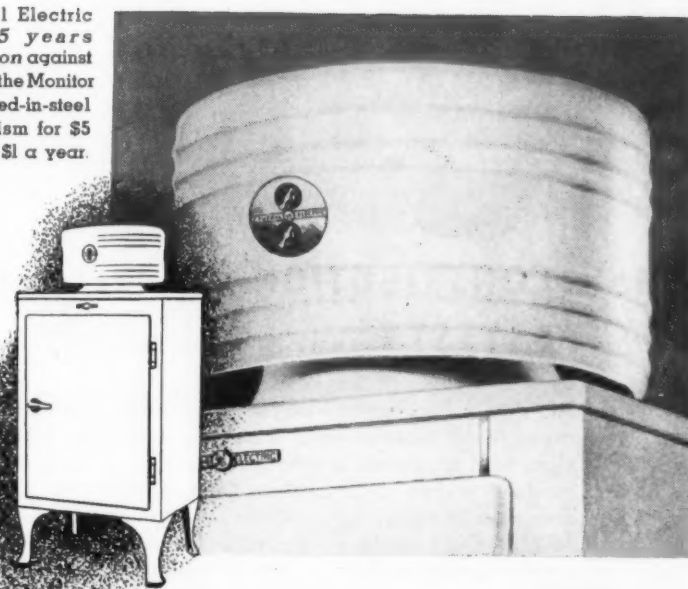
Sealed in ageless steel walls, protected from air, dirt, moisture and tampering fingers, the amazing trouble-free performance of the General Electric Monitor Top has built matchless good will with its owners.

Today the recommendation of a friend who is a user,

is the strongest favorable sales influence any household appliance can have. Every time an owner tells a friend or a neighbor about the amazing performance of her General Electric, the way is being paved for another sale. In every survey "Recommended by a friend" takes foremost rank among answers to the question "Why did you buy that particular make?"

Over 1,500,000 satisfied users now enthusiastically recommend their General Electric refrigerators to friends and neighbors. The G-E dealer not only makes more refrigerator sales through "using the user", but finds every G-E refrigerator owner to be a preferred prospect for other General Electric appliances. General Electric Company, Specialty Appliance Sales Dept., Section DF12, Nela Park, Cleveland, Ohio.

General Electric gives 5 years protection against failure of the Monitor Top sealed-in-steel mechanism for \$5 ... only \$1 a year.



GENERAL  ELECTRIC
ALL-STEEL REFRIGERATORS

G-E Lists Speakers For Sales Clinic Opening Jan. 28

CLEVELAND—Twenty-eight speakers, representing all phases of the merchandising field, will speak at the annual merchandising clinic of the specialty appliance sales department of the General Electric Co., to be held at Nela Park, Monday and Tuesday, Jan. 28 and 29.

Speakers at the Merchandising Clinic are as follows:

Kenneth Collins, Gimbel Brothers, New York City; Channing E. Sweitzer, National Retail Dry Goods Association; Amos Parris, Amos Parrish & Co.; Edward Goldstein, The May Co.; Herschel Lutes, J. L. Hudson Co., Detroit; Charles Francis Coe, Maxon, Inc.; John Guernsey, Retail Ledger; Princess Alexandra Kropotkin, Liberty Magazine; Charles A. Wolcott, Daniel Starch Surveys; Arthur J. Pete, The Lion Store.

T. K. Quinn, General Electric Co.; David Owens, J. B. Ivey & Co.; Merle Thorpe, Nation's Business; Philip J. Reilly, Associated Merchandising Corp.; James Gould, Stern Brothers, New York City; Earl Puckett, Hahn Department Stores; S. Einstein, G. Fox & Co.; R. R. Adams, Meier & Frank Co.; Jessica Meek, J. L. Hudson Co.; C. S. Maginnis, The Fair Store, Chicago; Nelson Wright, The May Co., Cleveland; Julien Elfenbein, House Furnishing Review; W. L. Stensgaard & Associates; Robert C. Euchenhofer, F. & R. Lazarus Co.; D. W. Proffitt, Proffitt's Department Store; Robert J. Bond, Jordan Marsh Co.; Alfred Auerbach, Retailing; Paul Hollister, R. H. Macy & Co., New York City.

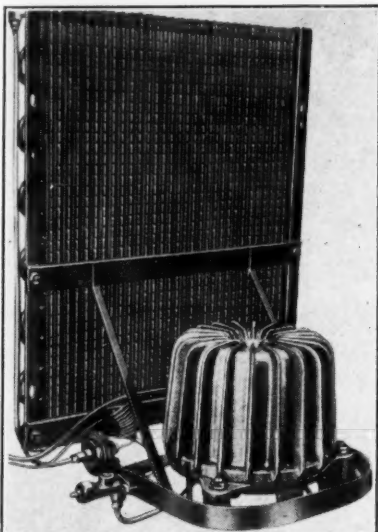
Kelvinator Gives Export Account to Maxon

DETROIT—Maxon, Inc., of Detroit, New York City, Chicago, and Cleveland, is now handling the foreign advertising of Kelvinator Corp. and Leonard Refrigerator Co., it was announced last week. Frank B. Amos contacts the export divisions of both companies.

Ice Company Loses Use Of NRA Insignia

MOULTRIE, Ga.—For violations of the wage and hour provisions of the ice industry code, the NRA has withdrawn the right to use the NRA insignia from the Moultrie Ice & Cold Storage Co. of this city.

Crosley's Rotary



Crosley's hermetically sealed rotary unit, which can be taken apart and serviced in the field. Rotor with eccentric impeller and blade are only moving parts.

Hendon Heads Sales of G-E Heating Devices

SCHENECTADY—Appointment of C. J. Hendon as manager of the heating device sales section has been announced by the General Electric Co. merchandise department, Bridgeport, Conn.

Mr. Hendon will have charge of sales of all G-E Hotpoint appliances. He succeeds R. J. Cordner, who has been appointed assistant manager of appliance sales in general charge of sales development for G-E radio receivers.

Mr. Hendon was associated with the Edison General Electric Co. of Chicago for several years, both in the home office and in the field. For the past three years he has been the G-E merchandise department's appliance sales manager in the Atlanta district. He will now be located in Bridgeport.

Dexter Will Head Apex Operations in Capital

WASHINGTON, D. C.—L. A. Dexter of the Apex Rotarex Corp., former district manager in New York, was transferred recently to Washington, D. C., where he will take over that territory. Jack Miller of Washington, D. C., will succeed Mr. Dexter in New York.

Leonard Forms Club For Wholesale Men To Aid Dealer Sales

DETROIT—Organization of "The Leonard Key Club," a wholesale club composed of distributors' wholesale men, was announced at zone meetings held recently in New York City, Detroit, Kansas City, and Atlanta, according to Godfrey Strelinger, sales manager of the Leonard Refrigerator Co.

Objective of the club is better quota performance on Leonard sales to and through dealers.

Three main methods for helping club members reach their quota were as follows: (1) a campaign involving the use of three different mailings sent to approximately 40,000 dealers; (2) a new hand-book covering the complete program and how to apply it in respective territories; and (3) the "dealer presentation book," a year-round promotional and advertising file detailing the program. It is designed to fit into a file cabinet and is the dealer's Leonard reference file of all 1935 refrigeration matters.

The first zone meeting was held in New York City and was attended by 150 wholesale men. The other meetings were conducted by G. Strelinger; J. J. O'Neill, manager of department store division; S. C. Mitchell, advertising and promotion manager; H. H. Dobbertein, assistant advertising manager; and Paul Sowell of the sales promotion department.

In connection with the advertising and sales promotional phase of the program, delegates viewed a new movie trailer for advertising in theaters and also three slide films with sound, covering product, sales promotional tools, and sales program.

Federal Trade Body Says Chains Big Advantage Is Lower Prices

WASHINGTON, D. C.—Summarizing the facts uncovered in its recent investigation of chain store operation, the Federal Trade Commission reported that "it may be stated that the chief advantage enjoyed by the chain store is its lower selling price to consumers."

"These lower selling prices are largely due to a variety of factors which may be divided into two classes: First, those which appear to be amenable to ordinary governmental regulation and, second, those which would be amenable only to extraordinary governmental measures."

Included among the former class are:

1. The lower prices of chains as compared with independents are often the result of special discounts which are sometimes based upon specified quantity purchases. In some cases, they are given primarily because of buying power in which case they may masquerade as brokerage fees or advertising allowances.

2. The large proportions of leader and loss leader merchandise at prices below the average cost of doing business plus the cost of merchandise.

3. More extensive short and less extensive over-weighting by chains in some localities than by independent stores on commodities sold by weight.

Among those factors amenable only to extraordinary measures, the commission cites:

1. Less service to customers by chain stores as compared with independents.
2. Lower wages paid.
3. Elimination of most of the wholesale selling expense.

4. Wider profit margins on chain store purchases and especially private brand merchandise as compared with standard brands, which advantage contributes to the "ability" of the chains to reduce prices through loss leaders or otherwise, particularly on standard brand goods, private brands being seldom used as leaders."
5. Profits from wholesaling operations in the case of a number of both large and small chains contributing to lower prices sold through retail stores.

6. Important advantage "through their ability to use newspaper advertising where independent retailers cannot afford to do so. Moreover, the newspaper advertising of the chains tends to be much more effective than that of the independents owing to the multiple outlets of the chains in those cases where the chain has more than one store in the area which is covered by the newspaper advertising."
7. Advantage in averaging profits to offset the higher prices of some localities. "This ability of the chain to average its prices and profits may contribute materially to its ability to use leaders and loss leaders effectively."

The commission also reported that it found that one-tenth of stores are chains, based on U. S. Census Bureau figures.

Chain store organizations in the country number 7,061 and operate 159,638 stores, and aggregate about 22 per cent of sales of all retail stores.

Now - - A Table Shelvador



Dorothy Fredericks (left) and Jeanne Macy of the Crosley radio station WLW prepare a lunch for themselves from one of the new Crosley "table Shelvador" models. The top is porcelain and can be used as a table, as demonstrated above.

BOOKS

(This is the fourth in a series of reviews of books comprising the General Electric Kitchen Appliance Salesmanship course prepared for G-E salesmen by LaSalle Extension University.)

By the time you've got this far in the G-E sales training course, the refrigerator is, theoretically, pretty nearly sold, so Assignment 4 goes about finishing the job—handling objections and gaining the close.

Not that the manual skims lightly over these phases and calls it a day. On the contrary, they are handled in more-than-average detail, and with a deftness unequalled in any other part of the series.

One might even say that Assignment 4 is more valuable than the others, because in discussing objections and closure technique, it necessarily treats on some of the subtler and psychological phases of selling that are oftentimes handled all too inexpertly.

Stress the value of a refrigerator and lay off the price angle in selling to the average family, the book advises. Only by so doing will you shove other of the group's wants sufficiently in the background during the sales presentation. Talk price only when the values have been thoroughly outlined.

"A three-point rule should be followed when your judgment indicates that the price objection is a sincere one and that the prospect cannot afford the model you first start to discuss: Break price into monthly terms, show lower-priced models, try to sell up after the close," says the book. It also insists that when competitive names are mentioned, they should never be knocked.

When the final touches have been put on a sales presentation, and Mr. or Mrs. Prospect is still dodging the

dotted line, what to do? Second part of Assignment 4 answers that question at length, with page after page of suggestions for discovering the missing "buying decision."

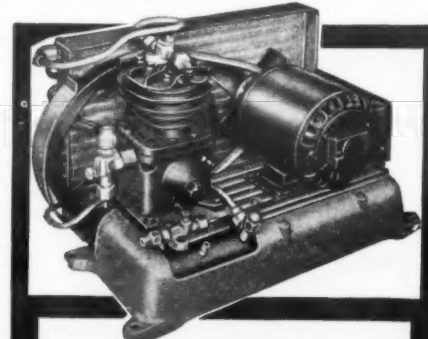
Meeting sales resistance is the problem next discussed, and under it comes the assertion that salesmen need not consider objections as refusals to buy, and that "argument will get you nowhere." Given also is a definite plan for handling objections. It has four steps, which are:

1. Classify the objection for its soundness.
2. Analyze it for the missing decisions.
3. Answer the objection satisfactorily.
4. Obtain a favorable commitment.

And thrown in for good measure in this section are some special selling talks said to be most effective in combating common objections, and some advice on when and how to anticipate them.

Final part of this book is a dandy. It talks about closing the sale, and is jam-packed with pointers on this maneuver. Among other things, it advises, "If your conception of the close is that it's a 10-ft. barrier to be leaped at a single bound, no wonder you have dreaded it. . . . You have been making your job harder than it really is. Think of the close as a succession of low hurdles to be taken easily, one at a time."

Having served up that bit of selling philosophy, it lists around a dozen methods for stimulating the close, and suggests that when a salesman is finally stumped by a prospect's failure to sign—where the real reason is not apparent—it is often smart for him to give the prospect to his dealer for reassignment. A few other pointers, such as what to do after a sale, round out this assignment.



4 CYLINDERS... Silent... Vibrationless

1935's CONTRIBUTION TO REFRIGERATION by the FASTEST Growing Name in the Industry

Here's the dependable way to handle big commercial jobs—install these NEW Brunner units. Radically new in dependability and design, with improved 4-cylinder compressors, the 1935 commercial models set a new standard for heavy-duty performance. Quieter... smoother in operation... more efficient. In a range from 3 H. P. to 10 H. P. Get complete data on these new water-cooled units—and on the complete Brunner line: 8 compressor models and 41 high-sides for every refrigeration need. Brunner Manufacturing Co., Ulica, N. Y., U. S. A.

NEW CATALOG NOW READY...WRITE!

Brunner

A NAME BUILT BY 29 YEARS OF SERVICE

To Builders of DISPLAY CABINET REFRIGERATORS

Ace Hard Rubber Doors, Rails, Jams and other structural parts are now standard equipment on the lines of nationally famous manufacturers. All parts, made in a complete range of sizes, are interchangeable, materially reducing the time and labor cost of assembly.

Write for ACE Refrigeration Parts Catalogue

AMERICAN HARD RUBBER CO.

11 Mercer Street, New York, N. Y.

Akron, Ohio • 111 W. Washington St., Chicago, Ill.

Complete Line of Commercial Compressors



For showcase and cooler manufacturers and for dealers in milk cooling equipment. Nine years of successful field experience.

Catalogs on request.

MERCHANT & EVANS CO.
MANUFACTURERS
PHILADELPHIA
EST. 1866 - Plant: LANCASTER, PA.

IMPACT!



... on the consumer creates PROFIT for F-M Dealers

● **Impact!** That something in a product which, on first sight, appeals so powerfully to the prospective customer that all preconceived ideas are swept away in a quick rush of acceptance and preference. Seldom is a product placed in a dealer's hands which truly has . . . *impact*.

But you can have it in your electric refrigerator line this year if you act *now*!

Your prospect expects differences in the various refrigerators he inspects before purchasing—and he finds *small* differences. Variation in appearance, shelf arrangement or hardware. Not until he comes to the Fairbanks-Morse Refrigerator does he find a *big* difference. And there he finds the CONSERVADOR! The sheer unexpectedness of it carries impact. And as you explain what the Conservador accomplishes in *economy*, convenience, space utility . . . how *logical* it all seems! No delicate weighing of slight features in the prospect's mind—but one *big, exclusive* feature that brings quick acceptance—and profits to the dealer.

The F-M franchise is the most valuable dealer arrangement to be offered for the 1935 season. Write, phone or wire for complete information and name of nearest distributor. Fairbanks-Morse Home Appliances, Inc., 430 S. Green St., Chicago.



Cable Address: FAIRMORSE, CHICAGO

FAIRBANKS-MORSE

Home Appliances, INC.

104 YEARS OF QUALITY PRODUCTS

REFRIGERATORS • RADIOS • WASHING MACHINES • IRONERS

PERSONALITIES

By George F. Taubeneck

Looking Backward

To paraphrase an old saw, nobody loves a *fact* man. But for the next two or three weeks you're going to get a flock of facts on this page—and like it, too, we'll bet.

The time has come, the walrus said, to speak of many things: of TVA and Shelveadors, department stores and kings. In past years the annual review of the season, which has appeared on this page in several installments, has been so appreciated by thoughtful readers that it has become an institution.

So, in spite of the fact that the heading, "Personalities," may not seem to fit it so well (although this record of the year is a summation of what the industry's personalities—gossiped about so lightly here most of the time—have accomplished), the history of 1934 begins here this week.

Where to start? Well, we might mention that the "kings" this year were Frigidaire, Kelvinator, General Electric, Norge, Crosley, and Westinghouse.

Each of these manufacturers made and sold more than 100,000 household electric refrigerators in 1934. We can't prove it, but according to the best information we can obtain they probably ranked in the above order (fourth and fifth places may be reversed). Incidentally, more than 100,000 Electrolux gas refrigerators were sold in 1934.

It was a year marked by wrestling with the government—with the TVA, the EH&FA, and the NRA. It was a year in which styled cabinets became the rule, rather than the brilliant exception. It was a year of progress for air conditioning. It was a year of profits.

Instead of the dreary, humorless, and sometimes nasty gatherings which characterized some previous years, those who attended the industry's conventions in 1934 celebrated their astounding success last year by having uncorking good times.

Roots in the Ground

For ELECTRIC REFRIGERATION NEWS it was a year of getting roots into the ground. Purchase of a fine old mansion and a sizeable piece of property in Detroit's art center gave the News a substantial and dignified home.

Publisher F. M. COCKRELL studied air conditioning assiduously, heard arguments of various equipment salesmen, and finally designed a system, according to his own ideas, to fit into the residential type of building which he was remodeling for the offices of the News. It works! Best testimony: No colds for staff members all winter.

Not only was the mansion air conditioned and completely redecorated and adapted for office purposes, but Mr. Cockrell began the erection of a new building at the rear of the present one to house the entire mechanical department, including a printing plant, of the News. The advent of freezing weather has slowed down the building job but it should be completed in a few weeks.

Near the end of the year, with general business conditions showing definite signs of improvement, and a new demand arising for competent and experienced men it seemed suddenly to dawn on the industrial world that these people down at ELECTRIC REFRIGERATION NEWS must have something on the ball; so we had to suffer the spectacle of seeing Advertising Manager HOWARD MATEER hired away by McGraw-Hill, Engineering Editor JACK SCHAEFER proselyted by York, and Staff Writer ELSTON HERRON lured away by Owens-

Illinois Glass. All in three short weeks!

That, gentlemen, was a mental toothache—and still is—around here. Schaefer and the writer had been as inseparable as a pair of pants. For a time some of us went around looking as washed out as a week-old cake of soap in a factory lavatory, but Mr. Cockrell went into action, and things happened.

First of all, to help run his clever new business machines which will greatly speed up the numerous record-keeping jobs in our office, he brought in a bunch of good looking girls.

Then we imported TED QUINN (not the G-E TED QUINN) from the St. Louis *Post-Dispatch*. Ted so far has distinguished himself chiefly by his amazing appetite—he seems to be to the menu born; but you'll be hearing from him! His Irish eyes and loving cup ears don't miss a thing, and he writes like an angel.

Mr. Cockrell is still looking for the right kind of an advertising manager to fill Mateer's shoes. In the meantime, advertisers have responded nobly to a letter explaining the situation. Orders for space in the 1935 DIRECTORY have been coming in by mail.

Also we have yet to find a man with a proper background to handle Jack Schaefer's job, but as usual under such circumstances the publisher of the News has thought of 57 other kinds of new services to give readers.

From the standpoint of the paper itself, perhaps the most valuable features were the publication of service manuals for orphan machines, and EL HERRON's dealer surveys. Most notable innovation was the publication of "candid camera" pictures (unposed, "unconscious" pictures snapped in any kind of light by a high speed German camera)—for the first time in any business paper or any publication outside of the more expensive magazines printed on high-gloss paper. They elicited more comments from readers than any other feature of the paper.

(Last week H. O. H. QUINN, sales director of Rex Cole, Inc., sent us a clipping from the *New York World-Telegram* with the following notation: "Your photography idea has finally reached New York." The clipping read: "Startling flashlights aren't needed with the modern Contax camera, held by Claren Stieglitz, staff photographer, above. Its lens, fastest produced by science, need only ordinary room light... its mechanism is the most compact and speediest made... its 1x1 1/4-in. film the most sensitive. Armed with this last word in photographic equipment Stieglitz went back stage this week during showing of several Broadway hits."

Sales Reach New Record

Breaking all existing sales records, manufacturers of household electric refrigerators sold approximately 1,400,000 units to distributors and dealers during 1934. That is the most important fact to be recorded in the history of the year.

An unprecedented wave of consumer buying during the early months of the year sent previous marks shattering in January, February, March, and April. All this despite cold weather and still subnormal business conditions.

Caught unprepared for the most part, manufacturers were kept busy day and night operating at peak capacity, with many of them stepping up production past all previous high marks. More than 1,000,000 refrigerators were shipped to distribution

outlets during the first six months of the year.

In July and August, sales slipped to slightly below the marks for those months in 1933, and in September it seemed certain that someone had pricked the sales bubble when output for the month fell 34 per cent below September, 1933. October figures were also uninspiring.

The year's last two months, however, witnessed substantial increases, to bring the year's total to somewhere close to the 1,400,000 mark.

The industry struggled for years before it was able to report sales of a million units in 1933, when the total hit 1,080,000. Early months of last year found leading figures in the industry predicting an even more satisfactory 1934.

How well their predictions were fulfilled is indicated by the fact that the 1934 figure was nearly 30 per cent greater than 1933.

Of course, refrigeration manufacturers helped induce some of this business by marketing models of striking design.

As early as February, the Universal Cooler Corp. contracted to supply Montgomery Ward & Co. with its refrigeration requirements for the 1934 season. The factory doubled its floor space and installed a new bank of production machinery, tripling its capacity. The contract involved approximately \$1,000,000.

Westinghouse received an order for \$500,000 worth of refrigerators and ranges from the Interstate Power Co., with headquarters at Dubuque, Iowa, which, with its subsidiaries, Central Light & Power Co. and Central States Power & Light Corp., was launching a four-year program of electrical equipment merchandising to increase current consumption.

The February shipments of Kelvinator totaled 20,943 units, including a 30-carload order from Raymond Rosen, Philadelphia distributor. The company's March shipments went to 30,009 units, bringing its total for the first six months of the fiscal year to 75,885 as compared with 37,084 for the same time of the previous fiscal year.

Norge shipped 19,998 household electric refrigerators during March to establish a new monthly record for shipments made by that company.

With such an impetus at the start of the year, the second quarter showed sales still cracking records, and the half-way mark for 1934 showed the 15 companies enlisted in Nema (National Electrical Manufacturers Association) and accounting for approximately 88 per cent of the total sales, with a record of 891,837 units—more than 60 per cent over the Nema record for the first six months of 1933.

It was a period which showed not only volume but profits recorded by such firms as Kelvinator, Crosley, and Stewart-Warner. It saw price increases, notably Copeland, Leonard, and Grunow, and still sales climbed.

New monthly shipments records were established by Kelvinator, Leonard, Norge, Crosley, Frigidaire, General Electric, Westinghouse, Sears-Roebuck, and Brunner. McCray, one of the leading figures in the cabinet building field, also showed a rising sales curve.

Two old concerns in the field came into difficulties and were rescued by rising young companies: Winslow-Baker-Meyering, which had already absorbed Copeland and Zerozone, took over Trupar, and Potter bought Jewett.

Servel elected to drop out of the household electric refrigeration field, and devote the whole of its time to commercial refrigeration (and, of course, its highly successful Electrolux gas refrigerator).

In August, when the year's first slump was reached, the industry's sales totaled 90,200 units, a decrease of 8 per cent as compared with the 1933 mark. At that, the year's figure approached 1,225,000 units, which was 38 per cent of sales for the same period the previous year. Despite the

general falling off, however, the four states of Alabama, California, Idaho, and Texas had substantial increases.

September sales shot the 1934 figure to 1,272,000 units, total for the month being 47,600. The sales of 14 manufacturers, however, dropped to 42,120 units during the month. Production of Nema companies also showed a decline. New York state, however, gained substantially, 18 per cent of all refrigerators sold during the month finding outlets there.

Continuing their downward trend during October, sales were 42,800 units bringing the industry's 10-month total to 1,315,400. The 13 Nema firms made 57,980 units during the period, and world sales ran 37,854. Stocks of Nema members continued to show an increase during the month.

About this time it became apparent that the goal of 1,500,000 units, set by leaders of the industry as their 1934 quota, would almost certainly be too large an order to fill. Even though November and December were as satisfactory in volume as were those two months in 1933, the sales total fell approximately 100,000 units short of the forecasted mark.

New Models and Styles

The sales leap which the refrigeration industry took in the early months of 1934 was due in some measure to efforts of the manufacturers themselves. Like leaders in the automotive industry, refrigeration companies helped to induce this flow of business by marketing new and improved models of unusual beauty and design.

As early as January 10, Crosley introduced a full-length door, with the "Shelvabasket" and "Shelvatray" features added to its "Shelvador" in its deluxe line.

Gibson brought out three styles of cabinets, including a deluxe line featured by paneled cabinet front and semi-concealed hardware. A new Jewett model was introduced, with its outstanding feature a "cold storage drawer" built into the bottom of the cabinet and designed for the storage of fruits and vegetables at temperatures of 42° to 45° F.

Stewart-Warner's 1934 refrigerators were conservatively styled, carrying shelves that slid in and out on rollers and with a twin-cylinder reciprocating compressor, heavily finned to reduce head temperatures.

Distinctively styled cabinets, with three food-filing drawers in the deluxe line, marked the introduction of the "Twentieth Anniversary" Kelvinator. Four series of models, comprising 10 refrigerators in all, made up the Kelvinator line.

General Household Utilities brought out its new line, with the unit placed on its side and covered with a steel dome. Other than eliminating the shaft seal, few changes were made, but two new deluxe models, one with a chromium-plated evaporator located in the center, were added.

Paneled cabinet fronts were also a distinguishing feature of the Merchant & Evans 1934 line. The factory also established list prices with distributor discounts, abandoning the former system of selling at net and allowing the distributor to determine his own resale price.

Five models comprised the Wurlitzer line, three of them with paneled doors and compressor compartment shields. Tops were built flush with the sides of the cabinet. Electrolux next brought out a kerosene-operated refrigerator, designed for use in homes where gas or electricity was not available.

Early in February, Copeland presented a line of seven household refrigerators and six new commercial condensing units, making a total of 18 commercial machines in the line. Compressors were single-cylinder, conventional type, quite similar to the 1932 model, with which Copeland dealers experienced their best year. Chief change was in the refrigerant, methyl chloride being substituted for isobutane. Corners on the cabinets

were rounded, as were the vertical edges on the doors and the compressor compartment panel.

In March, Frigidaire dealers opened their doors for the first showing of the 15-model 1934 line of Frigidaire household refrigerators. The line, split up into four sections—standard, master, super, and deluxe—was announced with an installed price ranging from \$99.50 to \$509.

Cabinet streamlining and the inclusion of a number of additional sales features heralded the coming of Trupar Mfg. Co.'s 1934 line of Mayflower refrigerators, announced late in February.

T. Irving Potter announced three lines of "air-conditioned" refrigerators, two of them brand new developments, to be offered to 300 good dealers. Dual evaporators accomplished the "air conditioning" and the new units ranged in selling price from \$165 to \$369. The Potter plan did away with the distributor, gave dealers exclusive franchise in their city without forbidding them to handle other makes, offered dealerships only in cities of more than 20,000 and less than 200,000 population, and barred department stores from sales rights.

General Electric's contribution to the beauty trend in electric refrigeration included smartly styled new models in both the "Monitor Top" and flat-top series. The new Monitor Top models had a capacity of 7 cu. ft. one having a porcelain exterior and the other being finished in glyptal. Prices ranged from \$230 to \$255 for the Monitor Tops and \$160 for the flat-top models. G-E's new models were styled by Henry Dreyfuss, the New York "stylist to industry."

Also in mid-March, Kelvinator announced a new "price leader" model, selling in the Detroit zone for \$105 delivered and installed. The unit had a capacity of 4.22 cu. ft. and was finished in lacquer. Model "V," as the unit was called, had a shelf area of 8.35 sq. ft. and an ice capacity of 3.4 lbs. per freezing, 42 cubes.

Early in April, Waukesha Motor Co. introduced a gasoline-powered domestic refrigerator, with self-contained milk cooler and portable ice maker, intended chiefly for sale in rural markets. Officials of the company said the household unit's operating cost was estimated at no more than 2 cents daily. The milk cooler had a capacity of 600 lbs., and the ice maker a capacity of 50 lbs.

Waukesha's initial advertisement in ELECTRIC REFRIGERATION NEWS brought an unprecedented flood of inquiries, and within a few days the factory was swamped with more orders than it could handle.

Truscon Steel entered the electric refrigeration market with models introduced under its own name and sized from 4 1/2 to 8 cu. ft. Features included foot pedal door opener, automatic interior electric light, fast freezing, a rubber ice tray, and shelves of the telescoping type to provide for larger bottle space.

Early in May, O'Keefe & Merritt brought out a six-model line ranging upward in price from \$119. The three largest models were styled, with the three smallest of conventional design.

Adding to its line, Westinghouse introduced its "C" model, with prices starting at \$134.50. Seven refrigerators were included, finished either in porcelain or Dulux, and with an inside of door "Handy Tray" on the larger models.

In June, Perfection Stove Co. brought out its Superfex kerosene-burning refrigerators in three new models embodying cabinet and mechanical refinements. Capacities were 5, 6, and 8 cu. ft. Zerozone, a week later, introduced seven new household models ranging in size from 4 to 7.6 cu. ft. and in price from \$116 to \$273. Apex' new line, featuring a standard and deluxe series, made its appearance the middle of June, with cabinet styling, new compressors, and new temperature control as features, the latter on its deluxe models.

(Continued Next Week)

What-to-Do Suggestions for Visitors to Conventions in New York City



The New York World Telegram (see fourth paragraph in column 2, above) may just be getting around to photographing the new shows with a fast camera—as is the Detroit News, which is making a great fuss about it—but performance snapshots taken from the audience appeared in Electric Refrigeration News back in 1933. Here are some from the new shows on Broadway. (1) Ilka Chase, Georges Metaxa, Charles Winninger, and Libby Holman in the wedding scene from "Revenge with Music," a musical show which was written in odd moments by two New York business men. (2) Winninger, whom you've all heard over the air in the Maxwell House "Showboat," and Miss Holman, widow of the Camel cigarette heir. (3) Ray Bolger, our favorite comedian, and Dixie Dunbar in "Life Begins at 8:40." (4) Ethel Merman singing "Your're the Top" in "Anything Goes." (5) Dennie Moore and Harry Richman in "Say When."

Service Labor Not Taxed by N. Y.

NEW YORK CITY—According to the most recent report obtainable from the finance department of the City of New York, the city's sales tax will not apply to service charges made by electric refrigeration repair men which involves labor only.

The word "services" as it is ordinarily used or defined means labor, or the expenditure of personal exertion, and if paid for there is no tax on same, but if such services includes materials finally disposed of to a retail consumer, there is a tax upon the materials.

If the invoice or billing does not separate the two items, there is a tax upon the entire invoice.

Text of instructions on sales involving the manufacture and sale of tangible personal property and service is as follows:

"In such cases, if the seller segregates his accounts and records and shows the fair selling price of the article manufactured, fabricated and/or sold separate from the installation or alteration charge, a tax applies to the fair selling price of the article manufactured and sold, exclusive of the installation or alteration charge. Otherwise, the tax applies to the entire contract price including the instalment or alteration charge."

Edison Institute Plans Dealer Prize Contest

NEW YORK CITY—To encourage more aggressive sales effort on the part of dealers in electrical appliances, the Electrical Housewares Committee of the Edison Electric Institute has announced a "better merchandising contest" for 1935. Prizes will total \$2,400, with allotment of \$600 in each quarter.

Awards will be made on the following bases:

January, February, and March—"the best plan for sales training of retail clerks in selling electrical housewares and how the plan was applied"; April, May, and June—best window display; July, August, and September—best store display; October, November, and December—best sales and promotional plans.

A first prize of \$100 and a second prize of \$50 is offered to the winners in each of three classes of outlets, namely, (1) departmentalized stores, (2) other retail outlets, (3) utilities. Five honorable mention prizes of \$10 will also be offered in each class.

The contest is sponsored by the Edison Electric Institute in conjunction with the following appliance manufacturers: General Electric Co.; Hamilton-Beach Mfg. Co.; Knapp-Monarch Co.; Landers, Frary & Clark; Manning-Bowman Co.; Proctor & Schwartz Electric Co.; Robeson Rochester Corp.; The Silex Co.; Waters-Genter Co.; Westinghouse Electric & Mfg. Co.; Swartzbaugh Mfg. Co.; American Electrical Heater Co.

Ice Box Makers Want NRA Guarantee Rule Ended

WASHINGTON, D. C.—Elimination of the trade practice rule prohibiting guarantees against future price advances or declines has been proposed by the Code Authority for the Household Ice Refrigerator Industry.

Suggestions or objections concerning an amendment deleting the rule from the code must be submitted before Jan. 18, 1935, to Acting Deputy Administrator C. R. Niklason, 1518 K St., N. W., Washington, D. C.

Members of the industry have informed the Code Authority and the NRA that abolition of the rule would tend to spread production and employment by encouraging orders several months in advance of delivery.

Kelvinator Puts Meter Plan in Small Towns

DETROIT — Kelvinator now has successful Meter-Ator accounts in towns as low as 6,000 population, according to V. J. McIntyre, manager of Kelvinator Corp.'s retail store division.

When the meter plan was first put into effect, Mr. McIntyre said, the aim of the department was to get a Meter-Ator account in every town of 100,000 and larger throughout the country. Even though the objective was closing major retail stores in the larger cities, a large number of accounts have been secured in cities ranging between 15,000 and 100,000 population.

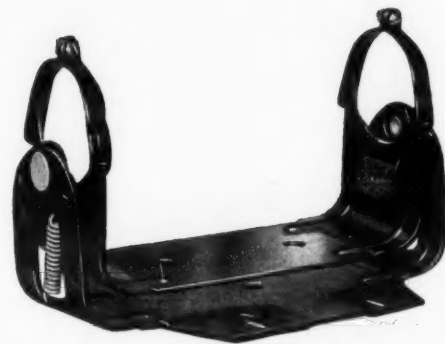
F-M Export Manager Reports Sales Increase

CHICAGO—F. San Roman, Jr., manager of export sales for Fairbanks-Morse Appliances, Inc., recently visited the home offices after a trip through Cuba and Mexico, and reported an increase in electrical appliance sales in these countries.

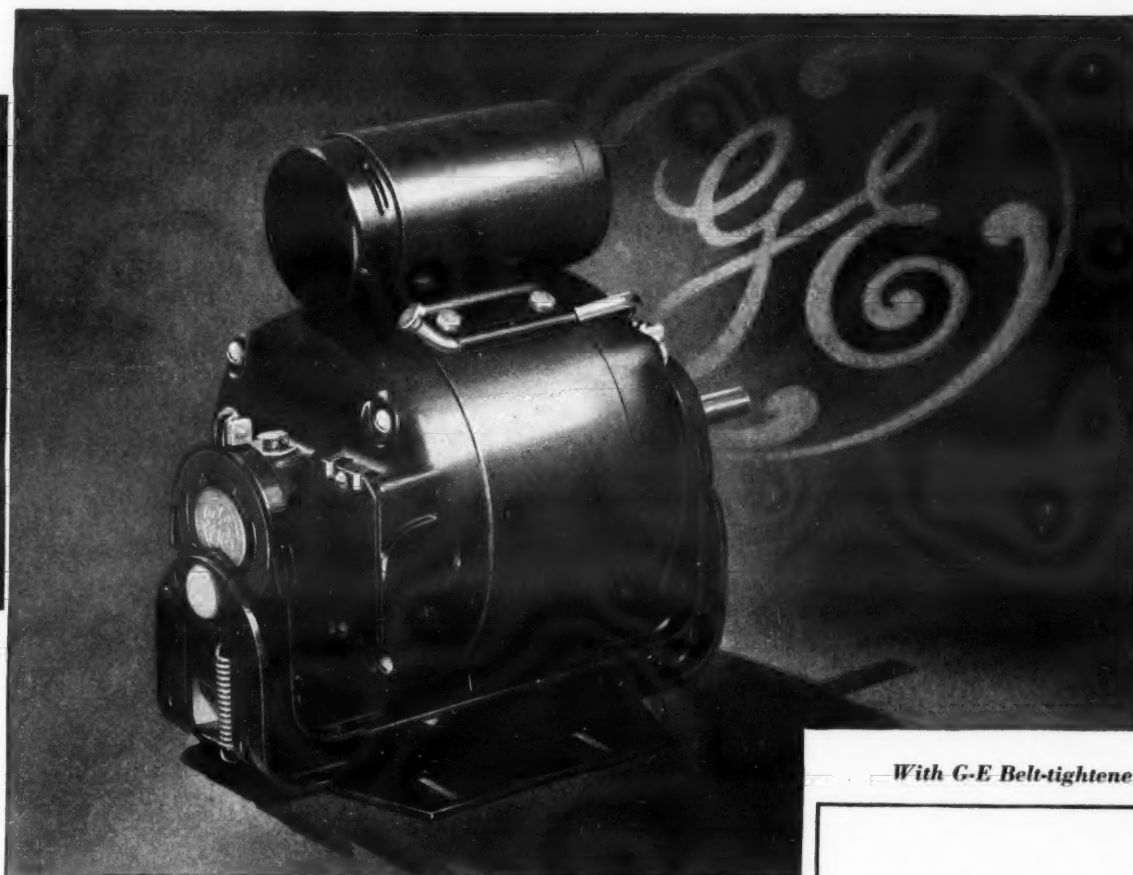
G-E CAPACITOR-MOTOR (TYPE KC) with AUTOMATIC BELT-TIGHTENER BASE

Lengthens life of belts and bearings . . . makes belt adjustments unnecessary . . . minimizes belt replacements . . . PROTECTS PROFITS BY CUTTING SERVICE COSTS.

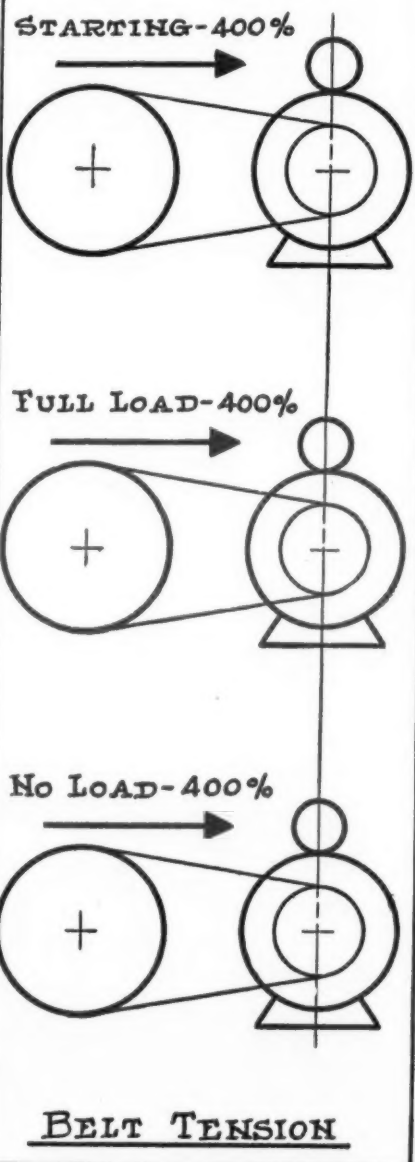
Increases customer satisfaction because it reduces power bills . . . helps make refrigerator quiet.



Ten domestic refrigerator manufacturers have already adopted this unique development as standard . . . many others will use its proved advantages to help them sell refrigerators in 1935.



Without G-E Belt-tightener Base



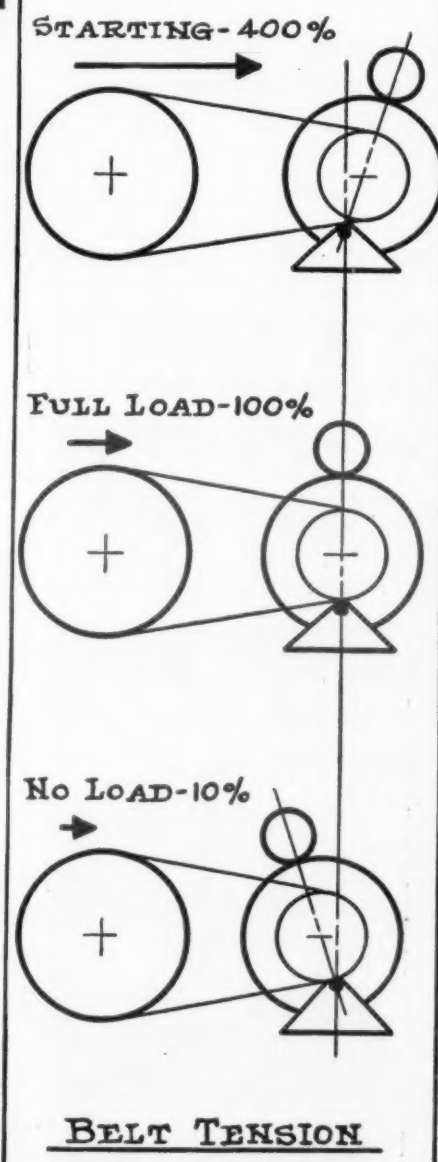
MONEY-SAVING ADVANTAGES OF LOAD-CONTROLLED BELT TENSION

WITH the G-E Belt-tightener Base, the belt tension is proportional to the load; it varies directly (as shown by the illustrations) with the load on the motor. Hence there is always just enough to prevent slippage. The proper belt tension—maintained by this exclusive G-E development—results in minimum power consumption, immensely reduced belt and bearing wear, and quieter operation.

WITHOUT THE G-E Belt-tightener Base, belt tension is constant and must be set for peak starting load in order to prevent slippage. The belt tension required to start the unit is unnecessarily great as compared with that required under normal running load. Hence unless the automatic G-E belt-tightener base is used, belt wear and bearing wear are always at a maximum.

Why not let the G-E AUTOMATIC BELT-TIGHTENER BASE help you build greater sales in 1935? No other motor has so many features that will help you sell refrigerators as has the Type KC capacitor-motor with belt-tightener base. The nearest G-E sales office will give you detailed information about this device; or write General Electric, Dept. 6A-201, Schenectady, N. Y.

With G-E Belt-tightener Base



GENERAL ELECTRIC

One Day Drive Nets 83 Sales for Utility

PITTSBURGH—In a one-day refrigerator sales drive, 83 Frigidaire electric refrigerators with a total value of \$13,687, were sold by employees of the West Penn Power Co. recently. The high division was Central with 38 Frigidaires sold. Northern division came in second with 23 sales, and Keystone was third with eight.

A prize of \$10 was given to the high salesman in each division with sales of over \$300. The high supervisor was awarded a \$15 prize.

Prize winners are as follows: Eastern, Charles Rush, Greensburg; Central, Frank Wyatt, Brownsville; Northern, John Leonard, Butler; Keystone, Carl Anderson, Ridgway.

Baltimore Power Firm Is Frigidaire Dealer

BALTIMORE—Consolidated Gas Electric Light & Power Co. is now a local dealer for the General Electric flat-top refrigerator. The new line was presented to executives, merchandising heads, and refrigerator sales personnel of the company at a meeting held recently at the Lord Baltimore hotel here.

Whether the Consolidated will handle the G-E Monitor Top refrigerator is not known. For the time being it will handle only the flat-top type.

Philadelphia Refrigeration Group Names Officers

PHILADELPHIA—At the December meeting of the Electric Refrigeration Association of Philadelphia, 1935 officers were elected and two reels of motion pictures covering the subject "Liquid Control Valves" were viewed.

Officers for the year 1935 are: William E. Fahrback, president; E. C. Johnston, vice president; R. W. Seed, treasurer; S. Goodman, secretary.

The following were elected to the Governing Board: R. W. Kell, George Blessing, Raymond Solly, Elmer Gordon, Morris Vinokur, and Carl Schneider.

Electrolux Sales in '34 Showed 50% Increase

EVANSVILLE, Ind.—Electrolux sales were up nearly 50 per cent during 1934 compared with the previous year, according to F. E. Sellman, vice president of Servel, Inc. From Nov. 12 to Dec. 12, factory shipments increased 237 per cent, over the corresponding period of 1933, he stated.

Spangler, Pa. Dealership Headed by Paul Jones

SPANGLER, Pa.—Announcement has been made that Paul R. Jones has been named manager of C. R. Jones & Co., Spangler, Pa., succeeding his father, C. R. Jones, who died on Sept. 22. The Spangler store was one of the winners in the Crosley national window display contest.

McCord REFRIGERATION PRODUCTS

COMMERCIAL EVAPORATORS

DOMESTIC EVAPORATORS

CONDENSERS

METLIFLEX ICE TRAYS

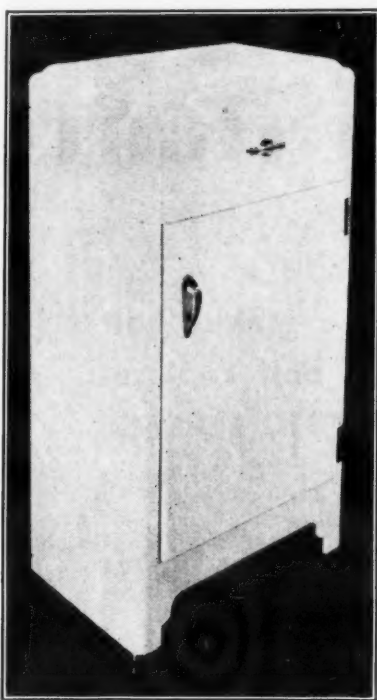
SPIRAL FINNED TUBING

SPIRAL COPPER FINNED IRON

STEEL OR COPPER PIPE

McCord
RADIATOR &
MFG. CO.
DETROIT, MICH.

New Beauty



This view of the new Westinghouse streamlined refrigerator cabinet shows how the designers were able to obtain the effect of a cabinet being molded from a solid block of porcelain.

Kelly-How-Thomson Train Is on Tour

DULUTH, Minn.—Exhibits of articles ranging from small tools to a complete furnace, air-conditioning unit, and stoker in operation are being shown in the 15-car "Train of Hardware Progress," sponsored by the Kelley How Thomson Co., wholesale hardware firm of this city. The train, now on tour, will exhibit its displays in 55 cities.

One of the seven cars containing exhibits is devoted to Grunow radios and refrigerators, another to various makes of ranges.

A third car displays a model home showing a partial exterior, a living room, kitchen, bathroom, furnace, and recreation room, completely furnished and equipped with the newest electrical conveniences. A representative of the Federal Housing Administration is in attendance to supply information relative to home modernization and repair through the FHA plan.

Graybar to Put Tag on Products It Distributes

NEW YORK CITY—Graybar Electric Co. which sometime ago announced that it was leaving the manufacturing field and devoting its entire activities in the future to the distributing end of the business, is now engaged in a drive to have its dealers use the Graybar tag on merchandise.

The Graybar tag will constitute a guarantee of quality and not an identification of manufacture.

Princess Kropotkin Visits G-E Kitchen

CLEVELAND—A distinguished visitor at General Electric's Kitchen Institute early this month was Princess Alexandra Kropotkin, writer, style authority, and contributor to *Liberty* magazine.

At the instance of Walter J. Daily, sales promotion manager, she delighted Specialty Appliance Sales Department employees with a short, informal talk. A luncheon, given in her honor, in the deluxe kitchen of the Institute, featured Russian dishes, table service, and linens.

Store Picture Makes 4 Sales for Dealer

COVINGTON, Ky.—Four prospects were turned into sales through the medium of a camera by Robert R. Whitcomb of the Whitcomb Electric Co., Kelvinator dealer of this city.

Four by-standers were included in a picture taken of the Whitcomb store on the opening day. Calling at the store later, they were shown the picture and all four bought Kelvinators. The first sale was a deluxe model purchased after a three-minute sales talk.

Dealer Uses 'Users' in Advertising Copy

SACRAMENTO, Calif.—Schroder's, local Stewart-Warner dealer, published the names and addresses of approximately 60 users of Stewart-Warner refrigerators in a local newspaper advertisement which it ran recently.

NRA Rules on Radio Code This Week

WASHINGTON, D. C., Jan. 15—The NRA code of fair competition for radio manufacturers will come up for final consideration at a conference which will be held here today between the RMA Code Committee, a committee of the National Electrical Manufacturers Association, and NRA officials.

An effort will be made to reach a decision on separate and independent code operations of the radio industry following the formal agreement made last August by Nema and the RMA with the National Industrial Advisory Board.

This agreement provides for separate and independent code status for radio manufacturers, with a radio code authority reporting directly to the NRA, but with continued operation, if possible through the electrical code.

An alternative to this state of affairs is the separate radio industry code submitted last summer by the RMA.

FHA Reports Increase In Building Projects

WASHINGTON, D. C.—Progress of the Better Housing program of the Federal Housing Administration is reflected by figures made public recently covering building permits in 772 cities which showed modernization work in November, 1934, of \$13,071,000 against \$8,110,000 for the same month of 1933, a gain of 62 per cent.

Cincinnati led in installation volume with \$216,645. Milwaukee was second with \$152,020, Washington third with \$68,370, Philadelphia fourth with \$47,430, Des Moines fifth with \$52,792, and Indianapolis sixth with \$35,106.

Included among the leading cities in the country, rated according to November, 1934, volume of additions, alterations, and repairs are:

New York City, \$1,730,280; Washington, D. C., \$627,192; Los Angeles, \$566,605; Philadelphia, \$324,144; Detroit, \$304,639; Milwaukee, \$285,580; Baltimore, \$281,800; Boston, \$268,704; Dallas, \$244,605; Chicago, \$178,003; Atlanta, \$175,615; San Francisco, \$166,435; Hartford, \$165,691; Cincinnati, \$151,020; Cleveland, \$150,925; Newark, \$125,840; Miami, \$125,099; Pittsburgh, \$116,773; Minneapolis, \$93,430.

Kelvinator Dealers With Meter Plan Led Others

DETROIT—Major retail stores using Kelvinator's Meter-Ator plan in 1934 on an average sold 2.1 times as many Kelvinators as the same type stores not using this plan, according to V. J. McIntyre, manager of the retail store division of Kelvinator Corp.

"Each of the accounts that were particularly outstanding was found to have a very fine personnel," Mr. McIntyre stated.

"In addition to this, proper attitude of the management and the right kind of supervision for the salesmen are very important considerations," he said.

San Francisco to Sponsor Building Mechanics Show

SAN FRANCISCO—Sponsored by the San Francisco Builders Exchange a Building Mechanics Exposition is to be held in this city during the late spring of 1935, according to an announcement made recently by W. H. George, president of the Builders Exchange and secretary and general manager of the Henry Cowell Lime and Cement Co.

Two purposes of the exposition will be to afford the potential buying power of the trade area of the Pacific Coast the opportunity to inspect the products used in building construction and to assist in increasing interest in the Federal Housing campaign.

Getreu Will Head Sales For Tracy-Wells Co.

COLUMBUS, Ohio—John J. Getreu, formerly city sales manager of the Tracy-Wells Co., Grunow distributor, has been appointed general sales manager of the organization, according to W. P. Tracy, president. Mr. Getreu has been associated with the company for 15 years.

Announcement of Mr. Getreu's appointment was made at the recent sales convention of Tracy-Wells Co.

B. M. & W. Distributing Co. To Handle Spartons

TOLEDO—The B. M. & W. Distributing Co., distributor of Sparton refrigerators and radios, has succeeded the Toledo Radio Co. Principals in the firm are Victor Basil, Leonard Murphy and Charles H. Womeldorff.

Westinghouse' Revolving Shelf



Prime feature of the Westinghouse '35 line is the revolving shelf, in half-moon shape, which swings out as shown above. When in normal position, it is securely locked in place.

Porcelain Enamel Institute Submits Two Plans For Promoting Economic Recovery

CHICAGO—Two plans for the purpose of stimulating industrial activity and employment were submitted recently to the President and the Administration by the Porcelain Enamel Institute, Inc., of this city. The plans were outlined as follows:

"Plan A. The purpose of this plan is to increase employment in the capital goods and equipment industries by stimulating the purchase of goods and the installation of equipment, apparatus or materials for:

"(1) The improvement of working conditions affecting the health and physical welfare of employees, including the modernization of sanitary conditions, ventilation, lighting, and the elimination of noise, smoke and similar unhealthful conditions;

"(2) The elimination of accident hazards causing or contributing towards injuries and death of school children, pedestrians, industrial workers, and others;

"(3) The elimination of fire hazards in cities and towns including the installation of protective devices to prevent fires, the modernization of fire doors and fire escapes, the installation of apparatus and devices which would prevent explosions and razing of condemned buildings representing extreme fire hazards.

"This plan contemplates a national drive with the cooperation of various national and local associations to stimulate the expenditure of funds and reserves now available for such betterments; this to be supplemented by means to insure loans for these purposes made to industrial and commercial establishments, public utilities and other business enterprises, and by grants for public works projects and relief work projects to charitable institutions and to agencies of county, municipal and state governments.

"Part of the stimulus to insure such activities may be provided by the inclusion of mandatory requirements for the modernization of working conditions in codes of fair competition for all industries. Further progress could also be made through the coordination

of the inspection and enforcement activities under existing state factory inspection laws and state and municipal safety and fire ordinances.

"Such recommended program of modernization of working conditions and the removal of accident and fire hazards will make for immediate and needed increase of employment.

"Plan B. The purpose of this plan is to expand immediately the purchase and absorption into use of durable consumer goods (other than those now included in the Modernization Credit Plan of the Federal Housing Administration) by the development of a low cost financing plan for wage earners and others which will, in its essential elements, provide:

"(1) The means of purchasing such goods as automobiles, furniture, radios, ranges, refrigerators, and other durable goods on the basis of weekly or monthly payments over a period ranging from one to three years;

"(2) Drastic reduction in the cost of such financing;

"(3) Complete insurance to the purchaser or borrower and his family against loss of equity or re-possession in case of death or disability resulting in complete loss of earning power. The cost of this insurance is to be assumed partly by the seller including the manufacturer, distributor and dealer, part by the borrower, and with insurance against extra ordinary losses to be provided from governmental funds made available for this purpose;

"(4) Partial or temporary insurance against total loss of equity in case of reduction or loss of earning power through unemployment where such security exceeds a pre-determined amount (representing the prime cost of manufacturing and distributing the purchase article). Part of this insurance is to be assumed by the seller including the manufacturer, distributor and dealer, part by the borrower, and with insurance against extra ordinary losses to be provided from governmental funds made available for this purpose."

There can be no substitute for Quality
ANSUL REFRIGERANTS ARE ANALYZED



When you buy refrigerants you want to be certain that they will give perfect performance. That is why you should standardize on Ansul Sulphur Dioxide and Ansul Methyl Chloride. Every cylinder, large and small, is individually analyzed before it leaves our plant. You can be certain that the contents are perfect for refrigeration purposes.

ANSUL CHEMICAL CO.
MARINETTE - WISCONSIN

EXECUTIVE OPINIONS

The following three letters were received this week by Electric Refrigeration News from executives of the refrigeration industry and suppliers. The questions asked by Editor George F. Taubeneck and opinions of other executives were published on pages 2, 4, and 6 of last week's issue.

MATTHEWS 'Price Differentials Will Be Minimized'

Electro-Kold
E. S. Matthews, Inc.
Spokane, Wash.

Jan. 10, 1935.

Editor:

1. We do not believe that nationally refrigeration sales will be as great as in 1934, due to the fact that buying was held up during 1932 and 1933. The popular demand was evident in the early part of 1934.

2. The styling of the exterior will be the leading point during 1935.

3. We look for no price change up or down in the near future. We believe that the differential between the large size and small size will tend to be minimized.

4. The NRA codes, as far as the manufacturers are concerned, are of benefit, as it keeps the price of the manufacturers list the same. As far as the retailer is concerned, they have very little effect.

5. I believe on the household business the influence of the department store and the independent specialty appliance dealer will be dominant. In commercial appliance business the independent specialty appliance dealer will be dominating. This year will see the recession of factory branch operation and that of the public utilities.

6. The trend on refrigerator down payments will undoubtedly be toward smaller payments the same as washing machines, vacuum cleaners, electric ranges, etc. have followed previously. We do not favor the financing of refrigerators at rates below that charged by the various large finance companies. To give lower rates only strikes a discordant note on financing of all appliances.

7. We do not anticipate a heavy demand for the chest models.

8. The activities of the TVA and EH&FA are having a very detrimental effect upon the industry. They are emphasizing low down payments and the effect that electric merchandise is all too high at the present time and the manufacturers are making an unnecessarily long profit. This only retards the industry when it is in a very close profit margin.

9. There will be a very large increase in air-conditioning sales during 1935. It will show the best increase of any division of commercial field.

10. The increase in commercial refrigeration will come through air conditioning as beer equipment during 1934 was the big reason for volume increase. This will be on the wane in 1935. All commercial refrigeration will be slightly better this year than last year.

11. Most decidedly a diversification has taken place so that both manufacturers and distributors handle a number of lines.

12. From the manufacturers' standpoint and dealers' standpoint, ELECTRIC REFRIGERATION NEWS carries much information through the advertising and description of articles advertised, so that it serves as a purchasing guide. We miss more pictures and descriptions of actual installations in the field, especially on commercial.

E. S. MATTHEWS,
President.

LINDSAY 'Replacement Buyers Seek Economic Operation'

Dry-Zero Corp.
Merchandise Mart, Chicago
Jan. 8, 1935.

Editor:

I have only attempted to deal briefly with those of your questions which more or less relate to conditions and facts within the rather clear cross section of actualities of the industry that we necessarily get. I could only guess at the correct answer to your other questions, and there is quite too much guessing in business as it is!

Entirely aside from the development of air conditioning, the indications are for a quite definite increase of electric refrigerator sales in 1935 over 1934's record, in spite of the fact that the latter exceeded reasonably sanguine expectations.

It is interesting to note that among these indications the replacement factor is rapidly changing from a minor to a major one. While other indicators point to an increase of "first buys" in 1935 over last year, it seems true that were this year's new owners no greater than '34, the num-

ber of new refrigerators sold would still show a surprising increase over the previous year.

Selling arguments to new owners will be a little advanced in quality this year. Nevertheless the low price agency will sell the price, the nameplate fan will sell the nameplate, and the novelty gadget enthusiast will sell novelties. But there is a growing interest among both the public and the more intelligent sellers in the matter of continuance of economical operation of an electric refrigerator. Increasingly fortunate will be they who know what essentials are needed in a refrigerator for that quality and can prove their merchandise has it.

In replacement sales, this permanence of economic operation is increasingly the key-note, due to the widening experience of its lack, even in refrigerators of good repute.

Prices up or down? For 1935 I doubt if there will be much change. But because of the quite wide difference in the actual operating values of electric refrigerators today, I do expect to see an increasing tendency for the refrigerator made of poor and cheap materials to become cheaper—though it may be just as showy on the outside. That development within

definite limits has taken place in every industry and only novelty has checked its beginning here, until now.

The chest models I believe will only last as long as the emergency that called them forth. I say "emergency" for government will soon find that the necessity of adding experimental development, advertising, etc., overheads, in conjunction with inevitable cost of ensuring political and bureaucratic inefficiency and "patronage," will eventually render government supplied electricity far more expensive than it now shows to be, based only on essential costs.

There can be little doubt that the commercial refrigeration field will afford a lively business as commerce and industry return to normalcy. But I am not rash enough to say that this will be in 1935.

The prospects of domestic electric refrigeration for 1935 look bright, but probably within three years the reaction, the stage for which is being busily—if unintentionally—set by a large portion of the industry, will be felt with unexpected force. It will, however, be a rather selective reaction, which though severe in many quarters may well prove beneficial in others where preparation is being made to meet and gain from it.

ELECTRIC REFRIGERATION NEWS has done a wonderfully fine job; it is

scarcely hyperbole to say that it has entered the heart as well as the offices of the industry. My only suggestion is perhaps a bit more effort, editorial or otherwise, in the direction of checking the consumption by a large portion of our infant industry, of too many nice green—but very green—apples. And so mitigate the resultant tummy-ache.

HARVEY B. LINDSAY,
President.

MAUTHE 'Business Prospects Look Brighter'

Sanitary Electric Corp.
Fond du Lac, Wis.

Jan. 8, 1935.

Editor:

It is a pleasure to express our opinion to the ELECTRIC REFRIGERATION NEWS on conditions that we believe will exist in the electric refrigerator business for the coming year.

Business prospects look brighter for us today than they have since we have been in the electric refrigerator business.

Our electric business volume has increased tremendously over the past year. There is an increased confidence

amongst our dealers throughout the entire world on general business conditions.

We have noticed a very favorable turn in public sentiment towards the need and use of electric refrigerator cooling.

We believe that the year 1935 will be the outstanding year of new design and styling in the history of the refrigerator industry. It is this new styling that will be the outstanding sales feature in the offerings to the trade.

Our new 1935 line will be formally announced very shortly. It will be a popular-priced, exceptionally attractive, short line of household electric refrigerators; especially, interesting to foreign dealers and distributors because of the wonderful values we offer.

All in all, we believe the electric refrigerator industry should again show a decided improvement over the past year. We believe prices will be somewhat maintained to enable the industry to grow in the right direction.

In a matter of a week or so we will inform you more fully about our new line and will undoubtedly run an advertisement announcing the models that we will introduce.

CARLTON MAUTHE,
President.

Servel Commercial Refrigeration

... a Statement of Fact ... a Promise of the Future

FOR more than a decade, Servel has been a potent, dominant factor in the field of Commercial Refrigeration.

Throughout the last ten years, Servel has marched steadily forward. Guided always by the inspiration of tireless improvement, Servel has pioneered and developed many of the most important advancements in the history of Commercial Refrigeration.

Servel's program for the years to come is based upon the sound foundation of a successful past—and upon a firm belief in the future of Commercial Refrigeration.

Today, distributors and dealers in Servel Commercial Refrigeration are in a strategic position to capitalize the shining reputation built by Servel, Inc., through the past ten years.

Today, effective cooperation is assured distributors and dealers by the Servel Commercial Refrigeration Division, which functions as

a complete, self-contained unit, with its own engineering and production facilities and with management of recognized ability and knowledge of the field.

• • •

In addition to the rich potentialities of Commercial Refrigeration, Servel makes available for its distributors and dealers additional markets from the fast-growing new giant industry, Air Conditioning.

As Servel expands its line to meet the demands of tomorrow's users, it provides distributors and dealers with a profit-making opportunity that exceeds all previous possibilities—backed by sales and service policies that have been thoughtfully planned to give distributors and dealers maximum merchandising support.

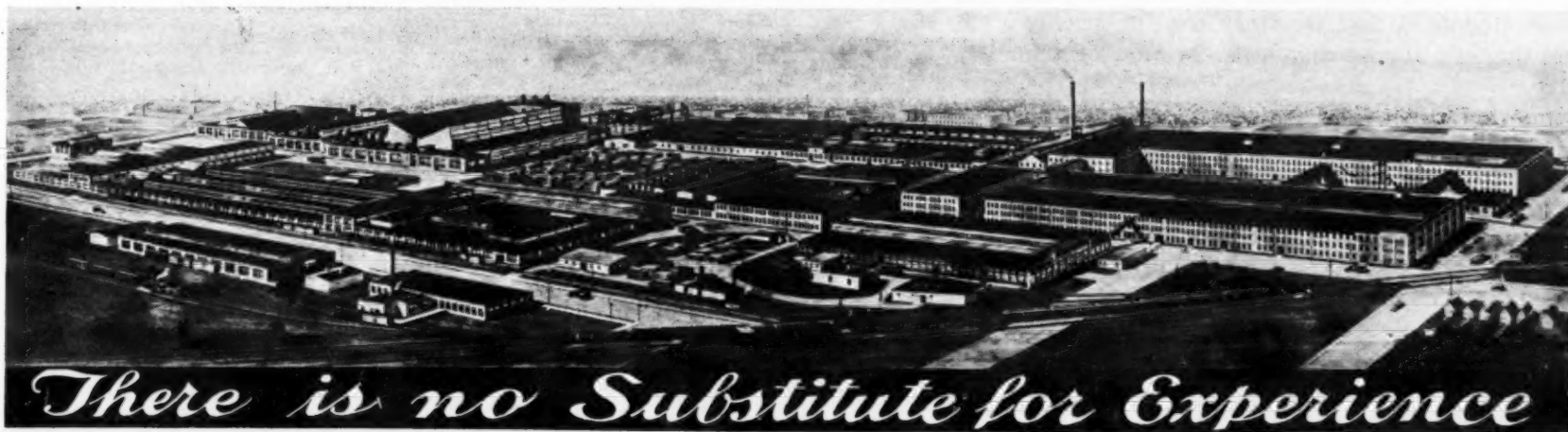
Franchises are still available in some select localities. For further information, write today to Commercial Refrigeration Division, Servel, Inc., Evansville, Indiana.

SERVEL

COMMERCIAL REFRIGERATION

SERVEL, INC. Commercial Refrigeration Div., EVANSVILLE, IND.

This great modern 30-acre plant is the home of Servel Commercial Refrigeration—and the world-famous Electrolux, the Servel Gas Refrigerator.



There is no Substitute for Experience

ELECTRIC REFRIGERATION NEWS

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VOL. 14, No. 3, SERIAL NO. 304, JANUARY 16, 1935

Chest Models in 1934

BECAUSE a product may be right from an engineering standpoint is no reason why it will be acceptable—on first sight, at least—to the general public. Odd and unconventional appearance frequently has an adverse effect on public opinion.

A case in point is Mr. Chrysler's "airflow" automobiles which were brought out last year. Engineers agreed that these cars were the most scientifically streamlined of all; and their performance justified this judgment, for they hung up all sorts of speed and acceleration records. Yet the cars didn't "sell." Only by patient education will Mr. Chrysler be able to create acceptance for his "extreme" type of car.

Closer home is the case of the chest model in the electric refrigeration industry. From an engineering standpoint, the chest model is most commendable. Because it opens from the top, there is scant loss of heat when the lid is lifted. Its shape and simple type of construction make it simple and economical to build. It occupies little space in the kitchen. Yet, in spite of all these advantages, and notwithstanding the fact that it retails for \$30 to \$40 less than the smallest model of a "standard" line, the chest model was not popular last year.

Most of the larger manufacturers—Kelvinator, Frigidaire, General Electric, Westinghouse, Norge, Leonard, and Crosley—started out with an initial production schedule of 5,000 chest models last year. Not one of these manufacturers sold out, and some of them have over half of these boxes left.

One or two of these manufacturers have said that when their present supply is exhausted they will have no more chest models for sale, for they do not plan to manufacture any more. Crosley has abandoned the lift-lid type of construction, and has for 1935 a 2-cu. ft. box and a 3-cu. ft. box with conventional, front-opening doors. In its promotion Crosley will say that this change enables the purchaser to use the top of the refrigerator as a kitchen table; but the real reason for the change was that of making the box look more like a refrigerator, so that people would buy it.

It is interesting to note that although the chest models were designed and put out in response to the demand from the EH&FA for an exceptionally low-priced refrigerator to be sold in the TVA territory, only a very small percentage of last year's production of chest models went into the Tennessee Valley. Sales of chest models in that territory were relatively poorer than in almost any other section of the country.

Somewhat surprisingly, more than half (this estimate is corroborated by three different manufacturers) of the total production was exported abroad. France was a very good market for chest models, and so was England. Electrolux did a fine business in England with a one-cu. ft. model.

In America General Electric probably did the best job—largely because of its excellent and consistent promotion. Or perhaps the fact that the G-E Liftop carried a somewhat longer discount than other chest models—which per-

mitted the salesman to receive a discount substantial enough to make it worth his while to put some effort behind selling the box. Further, General Electric has learned a good deal about the technique of selling a refrigerator which doesn't look like other refrigerators.

Of all the G-E men promoting the Liftop model, none has become better known than Johnny Duncombe, who is a territorial manager for R. Cooper Jr., Chicago G-E distributor. Mr. Duncombe has found that, in Chicago at least, there is a fairly large class of young married couples, students, and young business women living in twosomes whose food storage needs are met just right by a 2-cu. ft. refrigerator. Moreover, these people generally live in somewhat cramped quarters, and the small size of the chest model makes it most convenient. He ferrets out these prospects, and has sold an amazingly large number of chest models as a result. He has also found a good market for them in larger-grade apartment houses.

Enough instances of satisfactory sales on chest models have been established to indicate that they can be sold. It would appear, however, that these unconventional boxes are not in any sense a demand item. For that reason, if for no other, margins should be adequate for thoroughgoing promotion. Whether or not the chest model will be kept on the market permanently will probably hinge on that one point.

WHAT OTHERS SAY

The Oil Burner Industry and Nema

DURING the last two months there have been meetings between a committee from the American Oil Burner Association and a committee from the National Electrical Manufacturers Association to discuss putting AOBA into NEMA as a division. It is understood that such a merging of the two groups could be accomplished only if oil burner manufacturers were put under the electrical code. Regardless of the other advantages and disadvantages that might evolve from such a union, *Oil Heat* is opposed to it on this point alone. Directors of the American Oil Burner Association can do the industry no greater service at their January meeting than to refuse to join NEMA.

Uniting the two organizations would take care of the manufacturers' immediate code problems, whether entirely satisfactory or not. But it will leave the dealers, on whom the manufacturers depend for their business, entirely out in the cold. Though the National Oil Burner Dealers Association is a rugged youngster, it is not yet strong enough to cope with the problems that would face it at such a time.

The code for the Heating, Piping and Air Conditioning Industry, which is supplementary to the code for the Construction Industry, specifies oil burners as one of the appliances whose installers shall be governed by it. That means that all retail outlets for oil burners, and all firms installing and servicing oil burners are subject to its provisions. And those provisions will be anything but satisfactory to oil burner men. If in doubt, read a copy of Supplement No. 16 to Approved Code No. 244.

At present the oil burner business is being watched to see what action it is going to take on its own code. If the industry decides to go to work under its own set of rules, all will be well. If the manufacturers split off in favor of the electrical code, or if for any other reason there is further delay and bickering, the industry can expect the worst, and get it.

Once more the Code of Fair Competition for the Oil Burner Industry is being put into shape to be effective. With the proposed amendment the code as a whole becomes an instrument to which any fair-minded man in the business can subscribe.

Details there may be that can be adjusted to suit conditions better, but it is doubtful that a more workable code could be devised. The excess baggage that encumbered the old code has been removed, and many spots have been streamlined to cut resistance.

It is time the industry woke up to the fact that it is going to operate under a code, whether it likes it or not, and get actively behind the present Code Authority. The industry is going to ride in a vehicle of its own design and construction, or it is going to ride in a vehicle built for someone else.—*Oil Heat*, January, 1935.

Regimenting the Consumer

HENRY WALLACE, able Secretary of Agriculture, who has the evangelical quality more highly developed than any other member of the present national administration, is bound and determined that advertising shall be reformed through a new food and drugs act.

In his annual report, summarized in the Dec. 15 issue of *Advertising Age*, the secretary told why he regards a new law as important, and asserted that the only advertising which it will eliminate will be the wrong kind.

"In proportion as buying power goes for harmful things, consumers have less to spend for things that are worth while," the secretary said, presenting frankly the policy of guiding public demand, through control of advertising, into channels which he and his associates may consider to be best for the community as a whole.

Such an attitude of enlightened control of consumer purchasing involves the whole philosophy of regimentation. Fraudulent products and untruthful advertising should be eliminated, of course, but the government which also aims to guide buying power only in those directions which it regards as most desirable has undertaken more control than human nature will tolerate.—*Advertising Age*.

LETTERS

Dealers Truce with TVA

Hopkins Equipment Co., Inc.
418 W. Peachtree St., N. W.
Atlanta, Ga.

Editor:

Naturally it has appeared all along that I, as well as all other distributors in Georgia of electric refrigerators, have been an opponent of the TVA project which comprised the EH&FA in Chattanooga, however, neither ourselves or any of the other Georgia distributors have actually had a grievance against TVA or its subsidiary, instead, we have naturally fought the Georgia Power Co. here locally who started the sale of the ad-interim refrigerator at \$79.75.

I am sure you will be interested in learning that the Georgia Power Co., for one reason or another, have had a change of heart and are discontinuing as of Jan. 1 the sale of the ad-interim box at \$79.75 price, as will be noted from the photostatic copy of letter sent us by Mr. Collier.

The writer had the pleasure of talking with Mr. Munger recently in Atlanta and it appears to us at this moment, both the Georgia Power Co. and EH&FA are inclined to cooperate with the dealers and distributors in a manner which will cause us to reciprocate in every conceivable way, provided, of course, it shall have no ill effect upon us, or our independent dealers.

We have assured Mr. Munger that we shall cooperate with his office in every possible way for the betterment of electrical appliance sales in the state of Georgia.

W. D. V. HOPKINS.

Candid Camera Idea Copied

General Electric Co.
Nela Park, Cleveland

Editor:

I honestly believe that one of the most fascinating parts of your sheet is these intimate photographs that you take so well, and I think that if the same technique were applied to a house organ it would go far toward increasing its readability and its popularity in the field. So many photographs are so staid and stilted that they have practically no appeal.

I might mention that, taking a leaf from your book, we have used a high-speed camera and photo-flash lamps in making our slide films, and instead of getting a posed picture we snap an actual action view. As a result, our films have increased in interest, I would say conservatively, 50 per cent.

I thought you might be interested, probably because a rather casual idea of yours has resulted in actual savings and increased interest in the films we use in the field.

ART SCAIFE.

More Praise for Pictures

Refrigeration Service, Inc.
3109-3111 Beverly Blvd., Los Angeles

Editor:

I would like to add my word of appreciation for the most interesting photographs you have been taking for the News. Some of them are quite remarkable, particularly those on page 8 of the December issue.

I imagine you have received many a pat on the back for the editorial entitled "Asking Too Much," which appeared in the same issue, for it undoubtedly voices the opinions of many business men regarding the activities of the NRA.

I am enclosing with this letter a coupon covering a one-half vertical page for the coming REFRIGERATION DIRECTORY AND MARKET DATA BOOK which I would appreciate having you pass on to the proper party.

L. P. ROTH.

Issues Guarded Closely

3246 Girard Ave. S.
Minneapolis, Minn.

Editor:

Having recently taken over the task of managing Frigidaire's exclusive St. Paul metropolitan outlet, the Golden Rule Store, I have felt lost without the modern and informative news dispersed by your ace-high publication. Realizing that success is based and controlled by the nation's refrigeration pulse, please send ELECTRIC REFRIGERATION NEWS to me, in care of the Golden Rule, St. Paul, Minn.—and bill me for it.

I have been an ardent devotee of your publication for some three years and a half, but the copies I've attempted to "beg, borrow, or steal"—of late—have been in constant use by their owners—much like *Time Magazine* (the braggarts). And may I add—you've been responsible for my losing one night of leisure per week—during which I'm deeply engrossed in an air-conditioning course at our University of Minnesota, prompted by your excellent advance ballyhoo on that subject.

GORDON W. VOLKENANT.

Listing for Export Firms

Rocke International Electric Corp.
15 Laight St., New York City

Editor:

Your announcement of Nov. 7, asking manufacturers of refrigeration and air conditioning equipment to send you information for listing has been noted by me.

I notice in the 1934 REFRIGERATION DIRECTORY that you have listed firms who are distributors. I trust you will put us in the classifications which might attract foreign firms to write us.

We are the export department and operate in the name of the factory of Penn Electric Switch Co. and the Deissler Machine Co. We buy for export exclusively all parts for refrigeration and air conditioning.

It might interest you to know that during my recent travels of about a year abroad, I recommended your paper to quite a number of importers in various countries and they have since become subscribers either direct or through us. As a matter of fact, the list which you have in your issue of Nov. 7 contains many of the firms that I visited.

Suggestion: I believe it would be a wise policy on your part to inaugurate a section in your REFRIGERATION DIRECTORY particularly adapted to calling attention to the names and addresses and products of manufacturers who are equipped and desirous of going after export business.

ARTHUR ROCKE.

Answer: At the moment, we do not see just how we can differentiate between companies which are, or are not, interested in export business. We have found that the DIRECTORY is highly valuable to foreign buyers of refrigeration equipment and that the publication of this information has proved very valuable to the advertisers and others listed in the book.

One year the Department of Commerce cooperated with us in the distribution of the DIRECTORY to all offices of the department and we know that this brought a great many inquiries to the manufacturers.

We have noted also that the foreign buyers have a great problem in distinguishing between the companies which are prepared to serve them and those which have nothing to offer. We believe, however, that it is up to the manufacturer to make this bid for business in his advertising.

We offer the free listings in order to make the DIRECTORY complete as a source of information, but we cannot distinguish between the large and the small, the good and the bad, in these listings. In the advertising, the manufacturer has an opportunity to present his product in detail, along with information regarding his stability and service.

If you will refer to the DIRECTORY advertisement which appeared in the Dec. 19 issue of the News you will note that we have emphasized the foreign buyer and the need for an adequate advertising message.

A Schoolboy's Request

Dorchester High School for Boys
Dunbar Ave.
Dorchester, Mass.

Editor:

Would you kindly send me some news on refrigerators as I am supposed to make a talk. I think that if I talked on your subject it would be interesting to the teacher and also the class.

I would be very much pleased if you could send me some information concerning the facts about your make of refrigerators.

RICHARD CUSICK.

Answer: We do not manufacture an electric refrigerator but Editor George Taubeneck's review of the development of the refrigeration industry and a summary of important industry news events in 1933, published in the 1934 REFRIGERATION DIRECTORY AND MARKET DATA BOOK, should be helpful in preparing your talk.

We'll Be Glad to Do This For Other Distributors

Rackliffe Bros. Co., Inc.
Park and Bigelow Sts.
New Britain, Conn.

Editor:

Enclosed find the list of men and women connected with our various dealers selling Kelvinator. Also find a copy of a bulletin which we have just sent advising that we are sending their name in to you, recommending that they immediately subscribe to "Refrigeration News".

All the above as per conversation which you and the writer had in Detroit at the Kelvinator distributor's convention.

We here enjoy your paper very much indeed and wish to congratulate you upon the splendid job that you are doing.

FRED RACKLIFFE.

Answer: Please accept our thanks for copy of your bulletin No. 223 recommending ELECTRIC REFRIGERATION NEWS, also the galley list of your dealers. We will be very glad to send sample copies to the list. We will furnish subscription blanks for the News and for the 1935 REFRIGERATION DIRECTORY AND MARKET DATA BOOK.

Frigidaire's Big Sales Guns



Left to right: F. R. Pierce, sales manager; H. W. Newell, vice president; and C. A. Copp, general sales manager, confer in front of the offices in Dayton preparatory to leaving on the series of field conventions at which Frigidaire's 1935 refrigerator line will be shown to dealers.

LETTERS

Service Men & Dealer Lists

Penn Electric Switch Co.
Des Moines, Iowa
Jan. 5, 1935.

Editor:

We would like to know if you have a list of refrigeration service organizations and also a list of commercial refrigeration dealers which you might be willing to supply to us.

NELSON B. DELAVAN,
Sales Manager.

Answer: We are now endeavoring to secure information regarding all companies adequately equipped to render such service and the list will appear in the 1935 REFRIGERATION DIRECTORY to be issued about Feb. 20. Just now, all of this data is in the Directory Department being checked.

Regarding a list of commercial refrigeration dealers, we have no such list available. Most of the leading manufacturers of electric refrigerators have very kindly furnished us with their list of dealers for subscription promotion purposes, but this co-operation has always been given with the understanding that we would not make the names available to others.

We hope, in time, to be able to furnish a complete classified mailing service, but it does not appear that the manufacturers would agree to such a plan at present.

Smith Ice Machine Co.

Master Refrigeration Association, Inc.
102 Fifth Ave., New York, N. Y.

Editor:

Our attention has been called to a notice in your Jan. 2 issue on page 15 under the heading in column "Information wanted" captioned "Smith Ice Machine."

Whoever reported Smith Ice Machine Co. out of business in 1933 was erroneous.

Smith Ice Machine Co., 677 Second Ave., New York City, has been in business continuously since Sept. 1, 1929, and has not discontinued or issued a statement of such.

Smith Ice Machine Co. has not disposed of patents or other assets of their business.

Smith Ice Machine Co. is a member of this association and all our members are in continuous contact with this concern and E. O. Smith the proprietor.

E. S. LAPE,
Secretary-Treasurer.

Word from El Herron

Owens-Illinois Glass Co.
Alton, Ill.
Jan. 7, 1935.

Editor:

Almost every day since I got down here, a bunch of fine little letters has come from men in the refrigeration industry, wishing me well in my new job. I now have quite a packet of them, and naturally they mean a lot to me.

This I thought you'd be interested

in: All but one of them have said nice things about the dealer-distributor articles I wrote last spring and summer. It occurred to me that you might like to know this in case there were any doubt in your mind as to continuing them this year.

I hear Ted Quinn is up there with you now, and I hope you'll give him my love, and tell him I hope he's as happy there as I was. He's a good guy, and I wouldn't be surprised if he'd make an excellent fourth in those hallowed Monday-night get-togethers.

Everything is going along tiptop down here, and Grace and I are both happy as larks. We have two more weeks here, then nine weeks more on the road, and will get back to Toledo April 1. So the first Monday night in April, please draw up an extra chair to the conference table. The penny-bumper will be there to fill it.

I'd appreciate it a whale of a lot if you'd send me a copy or two of the issue in which you ran my goodbye letter. Just send it to me at the Mineral Springs hotel here in Alton.

All the luck in the world to you fella,

EL HERRON.

P. S. Grace and I saw the new Auburn speedster in St. Louis this afternoon and we both thought of you when we saw its chromium-plated exhaust pipes. It makes that puddle jumper of yours look like one of the manure spreaders on my pa's farm.

Word about El Herron

Reinhard Brothers Co.
Minneapolis, Minn.

Jan. 2, 1935.

Mr. El Herron:

So you played a dirty trick on old George and the rest of us fellows—walked right out from under us and didn't give any of us an opportunity to use the old weeping towel or nuthin'. I read some stuff in that refrigerator paper printed down in Detroit which give most all of the best news and although I don't know anything about this here glass business that you're going into I do know that if you're going into the Glass Blowing Department you should be well fortified to make a success as any young fella that has spent as much time in the refrigeration industry as you have should be able to blow any kind of a glass design that your firm might call for.

I guess that Toledo town that you're moving to is a pretty fair sized town and they do some mighty fine things down there. I note that they just donated some kind of a wonderful prize for the best football team in the United States and that prize is now on the back end of a Phaeton headed for Minnesota. So, I think you and the Missus are going to be all right down there.

You, undoubtedly, are going to miss George's kindly old face and fatherly advice and I'll bet you're pulling for your new associates to be just as nice as old man Taubeneck's son, George. We'll all miss you mightily and I'm just wishing you all the success that you're entitled to and that's everything.

That glass company had better put on a few more husky men down there because when you get busy they're

certainly going to be cutting capers all over the country with their glass. So long, boy, and good luck!

H. D. VESTAL,
Vice President.

Crosley Radio Corp.
Cincinnati

Dec. 31, 1934.

Editor:

I was surprised to read about Elston Herron leaving E. R. N., but congratulate the Owens-Illinois Glass Company on their gain. I am very sorry that it could not have been after the Crosley Distributor Convention the 4th of the new year, for then we might have had another good visit together.

Like his work and personal contacts, his letter published in E. R. N. typifies his splendid personality, friendship, and loyalty.

ELECTRIC REFRIGERATION NEWS has had and still has some mighty fine fellows on its staff and it will reflect honor on it that it could contribute to publicity a man who will do it honor and credit.

JAMES W. BECKMAN,
Director of Public Relations.

Norge Corp.
Detroit, Mich.

Editor:

Enjoyed your Christmas greetings even though they were not of a technical nature.

Sorry to hear of your losing El Herron.

IRA H. REINDEL.

Panhandle Hardware Men Meet Feb. 4

AMARILLO, Tex.—The twenty-sixth annual convention of the Panhandle Hardware & Implement Association will be held here at the Amarillo hotel, Feb. 4 and 5, according to C. L. Thompson, Canyon, Tex., secretary-treasurer of the organization.

Aitken Entertains Crosley Dealers

DETROIT—One hundred and sixty Crosley dealers in the Aitken Radio Corp.'s eastern Michigan distributorship met Monday night in the Detroit Leland hotel, heard Neil Bauer, Crosley field sales manager, outline the features of the 1935 line of Crosley electric refrigerators and radios, listened to the sound slide film, "The Glorious Fourth," and placed orders for more than two carloads of refrigerators to take care of their early sales.

Tuesday night a similar meeting was held at the Chamber of Commerce building in Toledo for approximately 175 dealers in the Aitken Corp.'s distributorship in northwestern Ohio.

"Last year the early buying rush caught us unprepared," said President James E. Aitken. "This year we want to have all our dealers ready to meet consumer demand."

He explained that, of his initial order of seven carloads of refrigerators, over three had been disposed of in advance of the meeting. Last year his dealer sales exceeded 3,000 units.

Present at the meeting were William Carroll, Crosley district sales representative; Owen Smith, Aitken sales manager at Toledo; and Harold Bay, Frank Dunford, Ralph Dikeman, Maurice Arnold, Leo Goodbred, and C. T. Ferguson of the local branch.

Among dealers who braved unpleasant weather conditions to attend were Stewart Greenlee of J. A. Greenlee & Son, Flint, Mich.; Roy Martin, general manager, and James Proctor, sales manager of Malcom Music House, Flint, Mich.; W. W. Dubay and H. D. Bates, Broadway Radio Shop, Mt. Clemens, Mich.; H. W. Gobert, Radio Studio, Pontiac, Mich.; Lee L. Kennedy, Home Electric Co., Pontiac, Mich., whose window display

Delivering a Chest



Johnny Duncombe (center), territorial manager for R. Cooper, Jr., Inc., Chicago G-E distributor, delivers a G-E Liftop to a small Chicago apartment. Mr. Duncombe has specialized in promoting the chest type of refrigerator.

won twelfth prize in a nation-wide contest sponsored by Crosley last year.

In Mr. Kennedy's display, an old, battered ice box and a modern Crosley electric refrigerator were placed side by side, doors ajar to allow a view of the contents of each and their condition, while neatly-worded placards placed at strategic positions called attention to the advantages of the electric refrigerator.

Mr. Kennedy said he found the window a very effective sales promoter, especially with women.

Universal Cooler—a name that invariably receives favorable mention when dependable performance by electric refrigeration units is the subject of discussion.



UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN BRANTFORD, ONTARIO

MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

A Deluxe Feature



This young lady opens one of the drawers in the "triple storage" compartment that is a feature of the Westinghouse "streamline deluxe" series.

Census Shows Gain In Sales of SO-2

WASHINGTON, D. C.—The U. S. Department of Commerce biennial census on manufacturers of compressed and liquefied gases, made in 1933 and recently made public, showed that there was an increase over figures taken in 1931 in the production of sulphur dioxide, an increase in the production of ammonia, and a decrease in the production of solid carbon dioxide (dry ice).

Neither methyl chloride nor Freon are specified on the questionnaire used for collecting census data.

Production of sulphur dioxide increased from 16,104,534 lbs. in 1931 to 19,559,779 lbs. in 1933. It has been estimated that sulphur dioxide manufacturers sell about one-third of their tonnage in the refrigeration-grade product.

Dry ice production fell from 84,954,018 lbs. in 1931 to 59,578,428 lbs. in 1933.

Production of anhydrous ammonia increased from 127,098,718 lbs. in 1931 to 160,193,292 lbs. in 1933. In the 1931 census the consumption of 8,106,668 lbs. of ammonia in the manufacture of artificial ice was reported by 3,653 establishments. No similar data were collected for 1933.

Liquid Carbonic Builds New Dry Ice Plant

NORFOLK, Va. — Liquid Carbonic Corp. is erecting a new carbon dioxide plant here to replace the smaller one now in operation on the same site. The new building will be ready for occupancy in February and will make the twenty-second branch operated by the corporation.

Equipment to be used will supplement the carbonic gas and dry ice output of the Boston, New York City, Philadelphia, and Atlanta plants. Steps in production are so arranged that manufacturing is a continuous direct line process. The output of Red Diamond dry ice alone will be increased to daily capacity of 15 tons.

For 10 years the Norfolk branch has been under the management of W. R. Wiggins, who served in various capacities in the same plant for 17 years before being named manager.

Allen-Bradley Builds Water-Proof Line Of Switches

MILWAUKEE—Enclosures of water-tight, weather-proof construction have been developed by the Allen-Bradley Co. for its "709" line of solenoid operated across-the-line switches.

The Type B enclosure is of cast iron, cadmium plated to resist corrosion. A live rubber gasket between the cover and base keeps out all moisture. The top and bottom of the base are tapped for threading in conduit, thus making possible a water-tight seal between conduit and box.

The switches, being of the solenoid type, are compact in size. The double-break silver alloy contacts eliminate flexible connectors.

Soldered-type thermal overload relays which can be reset without opening the cabinet provide protection against overloads.

Kelvinator Sponsors Commercial School

DETROIT—To enable engineers to handle application engineering work locally, a factory school on commercial refrigeration applications was held here last week for engineers sent in by Kelvinator distributors and branches, according to M. C. Terry, manager of the commercial applications department of Kelvinator Corp.

Other schools will be held here during the first quarter of the year, Mr. Terry said, and field schools covering commercial applications and sales work are being held at various points throughout the country.

Milwaukee Service Firm Moves to Larger Shop

MILWAUKEE—W-M Refrigeration Co., service and installation firm of this city, has moved into larger headquarters in a three-story building at 2468 N. Third St. here, according to G. D. Wang, head of the company.

National users' service, independent service, and service work for local dealer are handled by the firm.

Westinghouse Book Explains Principle Of Refrigeration

MANSFIELD, Ohio—"Ice by Wire," a recent publication of the Westinghouse refrigeration department written by J. H. Ashbaugh, chief engineer of the Westinghouse Electric & Mfg. Co., explains the general facts pertaining to the modern domestic refrigerator unit in such a way that the average child of grade school age can grasp the mechanics of electric refrigeration.

In addition to the explanation of electric refrigeration, the booklet also gives a brief history of man's effort to perfect more efficient refrigeration, and depicts the battle between man and bacteria or germs to maintain proper food preservation.

To clarify the explanation of refrigerants, cycles of operations and other technical phrases, the author has used airplanes, bowls of soup, tea kettles and other subjects as symbols.

Soup Bowl and Ice Cake

Mechanical, or electric, refrigeration is pictured as a war with "heat-planes" from a bowl of soup attacking an ice cake, the ice cake having "anti-aircraft guns" as defensive instruments.

The following extract indicates the style of the booklet and the explanation of electric refrigeration:

"Now we have said that whenever those 'heat-planes' attack something, and change it from a solid to a liquid or a liquid to a vapor, the heat is carried away. That is exactly what happens here, inside our tank. The 'heat-planes' attack our liquid SulphurDioxide. It changes into a vapor. And the vapor escapes out of the other tube we have provided, carrying the heat with it. As long as we keep pouring liquid into our tank on one side, we can keep carrying heat out the other. Pretty soon our bowl of soup is going to get tired of sending out 'heat-planes' to attack a metal tank that doesn't seem to get a bit smaller or weaker. It's going to decide to get cold and stay cold. The bacteria it contains decide to curl up and sleep for a while. Yet it doesn't freeze, either. It's SAFE . . . in the 'SAFETY ZONE.'

"But according to this diagram, it looks as though we needed a further step before our process would be practical. Certainly we would get pretty tired of standing there pouring liquid out of a pitcher by hand. And even rigging up a big tank full of liquid so it would run into our little tank inside the box wouldn't be so good, either. For pretty soon that supply would be all gone, and would have to be replaced, just like ice.

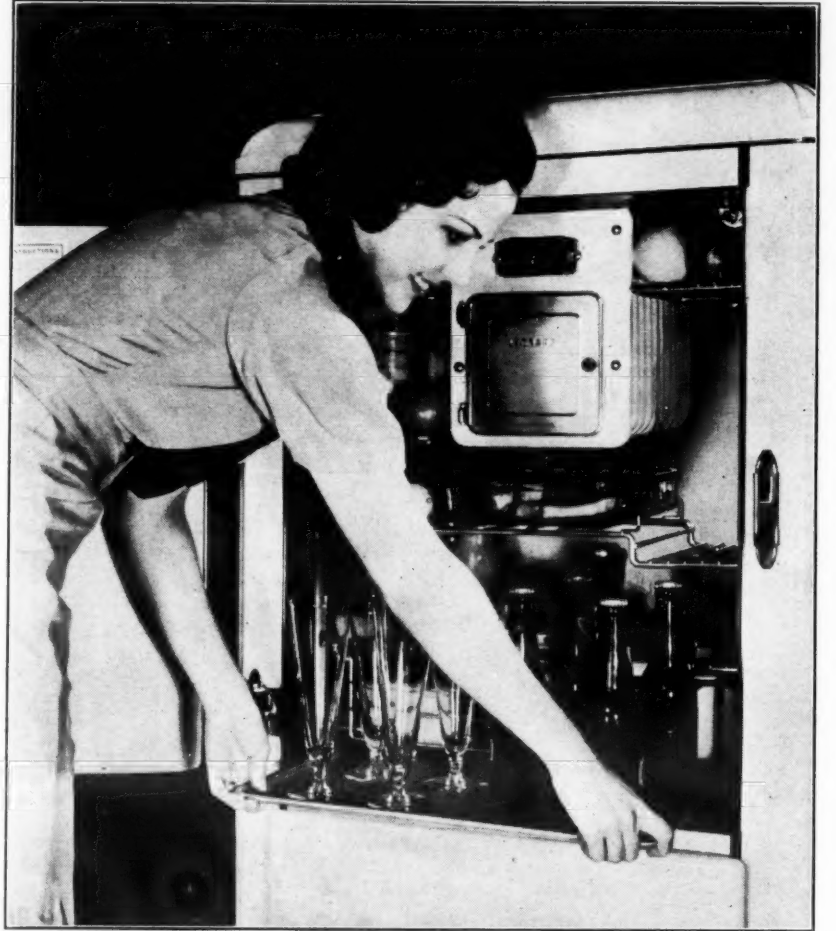
Re-employing the Refrigerant

"But suppose, instead of letting the 'vapor' that is carrying off the heat escape into the air, we direct it into another tank outside our box and blow air over it with a fan to cool it. Just as the heat in the box caused it to turn from a liquid into a vapor, so the cool breeze from the fan turns it from a vapor back into a liquid again. By connecting the pipe where we had our funnel to this cooled tank, we find we can keep this liquid passing through the tank inside our box, drawing out the heat until our bowl of soup hasn't a chance to stay warm.

"This system works like taking water out of a pail with a sponge. In fact, if we think of the heat in the box as water in a pail and the liquid as a dry sponge, we can get a very good idea of the system. We put the sponge in the water and let it soak up as much as it will hold. Then we remove it and squeeze the water out. That makes our sponge dry. Then we put it back in the pail and repeat the process. If we do this enough times, we can get every drop of water out of the pail.

"In exactly the same way, this system lets liquid into the tank inside our box. It turns into vapor and 'soaks up' heat. Then we take the

Nice Accessory for Parties



Demonstration of how a hostess can cool beverages and chill glasses with the service tray that fits into Leonard models.

vapor out, full of heat, and 'squeeze' the heat out of it. It turns back into a liquid again. And we send it back to repeat the process.

Compressor and Condenser

"Now we need to add a few things to our system to make it work perfectly. We must have a little pump or 'compressor' to keep the liquid and vapor circulating and to help the process of changing the vapor back to a liquid by 'squeezing' it just before it is cooled. We need a 'condenser,' which is an affair just like an auto radiator. The 'squeezed' vapor runs through it . . . the fan blows on it . . . and by the time the vapor gets through, it is a liquid again. The heat has been taken out of it, and it is ready for another trip through the box.

"Besides these things, we need a 'valve' or automatic 'trap-door' between our outside tank and our inside tank, so that the right amount of liquid will enter. Let's add these things to our picture and see what we have:

Electricity's Part

"But wait a minute! Here we've been talking about liquids and vapors and haven't said a word about electricity! I shouldn't blame you for wondering where the 'wires' come into the 'Ice by Wire.'

"However, it's easy to explain. The electricity is needed to run the motor that operates the little pump or 'compressor.' You'll remember that this is what keeps our system circulating and helps to turn our vapor back into a liquid by 'squeezing' it just before it passes into the 'condenser' to be cooled.

"We also need electricity to run the fan that blows on the condenser and carries the heat away that the vapor has 'sponged' out of the box. Having this fan makes the whole system operate better, just as the fan on an automobile motor is necessary to help the radiator cool it.

Control of Motor Operation

"Now it is not necessary to have this motor run all the time to keep our box cold. In fact, the less it has to run, the less it will cost for electricity. So we must have some pro-

vision for turning the motor off when our system has taken out all the heat from the inside of the box that we want it to. Then it will rest until enough heat has come back into the box so that it should start up again.

"We do all this very simply by means of a little device known as a 'thermostat.' This is an instrument that is very sensitive to changes in heat and cold, like a thermometer. You know how the mercury in a thermometer moves up when the air around gets hot and down when it gets cold. Well, a thermostat does the same thing—except instead of just saying, 'It's 50 degrees' or 'It's 32 degrees,' it DOES something about it. It telegraphs a message to the motor and says, 'Hey, there! It's getting too warm in here. Start up and take some of this heat out!'

Thermostat's Function

"The motor obeys. The system starts circulating. The liquid is pumped into the little tank in our box. It changes into a vapor, the vapor soaks up the heat and carries it out. The 'compressor' and 'condenser' squeeze the heat out, and that keeps up until the inside of the box is cold enough for proper food preservation.

"Then the 'thermostat' says, 'O.K. It's cold enough now. You can take a rest for a while.' The motor stops. The box stays cold for quite a while, depending on the quality of its construction and the number of times the door is opened. And it does not need to start up again until the 'thermostat' tells it to.

"So let's add a motor and thermostat to our picture and it will be complete."

Arco Co. Establishes New Research Laboratory

CLEVELAND—The Arco Co., manufacturer of paints, lacquers, enamels, and varnishes, recently announced the foundation of Arco Research Laboratories "dedicated to American industry for exclusive paint, varnish, and lacquer research . . . with the objective of making possible the profitable production of better finishes at lower costs."

Candid Camera Catches a Bit of Drama at a Convention Banquet



(1) Four Norge banqueters sit forward expectantly as one of the chief speakers starts his oration: Left to right they are Jack Motte, Norge Corp.; C. L. Walling, Kansas City; Ed Hughes, Norge commercial engineer; and Jack Marvin, Norge Corp. (2) The speaker must be "viewing with alarm" and painting a dark picture, as Messrs. Motte and Marvin bite their fingernails in their anxiety. (3) Ah-h-h. Everything appears to be hunky-dory now, and a bright future is probably being depicted for Norge, with Motte lolling back in his chair Walling and Marvin managing a smile. (4) Dave Trilling (right) of the famed Trilmont distributing organization in Philadelphia listens raptly as Cal J. Zamoiski of Baltimore clears up a point in question.

WHAT IS THE SIZE OF MY MARKET ?



*Well, just
figure it out
for Yourself !*

**1,400,000 Electric Refrigerators
were sold in 1934**

Estimates for 1935 indicate the sale of 2,000,000 Household Units

Whether you are a manufacturer of refrigeration units, cabinets, parts, materials or accessories, your sales for 1935 should be materially increased over 1934. But how to get your share of the business. Well, for one thing—you *can't afford to be out of the 1935 Directory*.

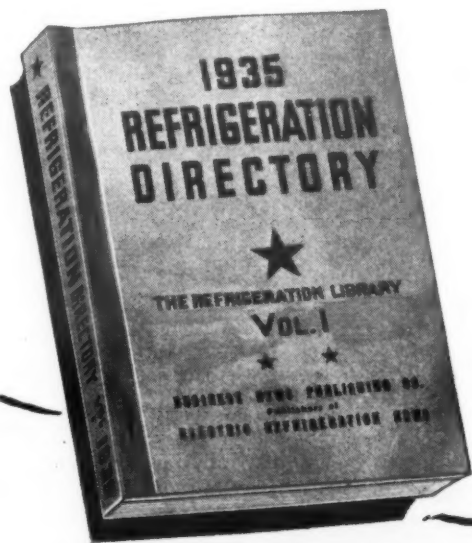
The REFRIGERATION DIRECTORY AND MARKET DATA BOOK is the buying guide of the industry—the official register of all trade-marked electric refrigeration products. Manufacturers turn to it for information on suppliers of parts, materials and accessories as regularly as you turn to the classified section of a telephone directory to find some source of supply. Distributors and dealers turn to it likewise for names of manufacturers of refrigerators and of accessory lines.

Of course you are listed in this Directory, free, under your proper classification. But, as we have pointed out previously, is listing enough?

Which concerns would you contact first—manufacturers merely listing their names, or those supplementing their free listing with an informative advertisement telling what they have, describing it, and putting prospective customers in position to talk business without further preliminaries?

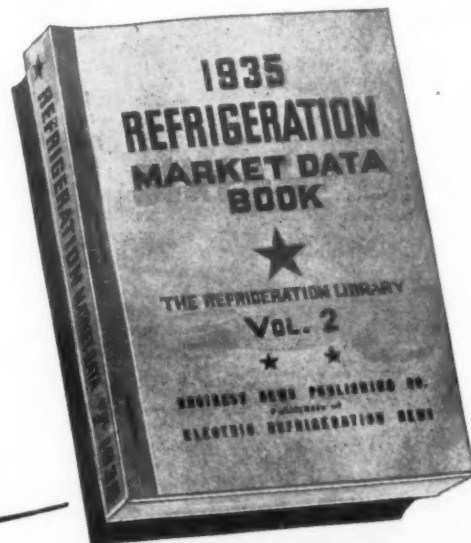
Besides that, an advertisement in the Directory indicates that your company is established and that your design is perfected. Only manufacturers whose products are fully developed will advertise in a directory which will be in service for a full year.

All manufacturers prepared to serve the refrigeration trade should give full information in the REFRIGERATION DIRECTORY AND MARKET DATA BOOK. The cost is very low.



VOL. 1—1935 REFRIGERATION
DIRECTORY

Recognized industry register of all trade-marked refrigeration and air-conditioning products. Four complete sections—(1) Alphabetic list of manufacturers; (2) Index of trade names; (3) Classified list of refrigeration equipment, parts and materials with all sources of supply; (4) Geographical directory giving name, address, telephone number, and products of manufacturers. Independent service companies and jobbers of supplies, parts, and materials included.



VOL. 2—1935 REFRIGERATION
MARKET DATA BOOK

Veritable encyclopedia of information on refrigeration and air-conditioning industries. All known facts and figures recording development up to date. Systematically arranged and tabulated. Subdivision by territories and types of products for market and sales analysis. Included are household, commercial, and air-conditioning sales statistics—survey of distributive channels—merchandising activity—potential market and other essential data.

BUSINESS NEWS PUBLISHING CO. 5229 Cass Avenue - Detroit, Mich.

The 1935 Refrigeration Directory and Market Data Book—in two volumes—will be issued Feb. 20. Price \$5.00 per set postpaid in the United States and all countries in Pan-American Postal Union. In combination with a year's subscription to Electric Refrigeration News, \$6.50. For all other countries the price of the books is \$6.00. In combination with the News, \$9.00. Canadian subscribers are required to pay a tariff and excise tax which amounts to \$2.59. These extra charges will be collected by the Canadian postoffice at the time books are delivered.

PROPOSED NEW YORK CITY REFRIGERATION ORDINANCES

Limit Amount of Refrigerant in Air Conditioning Systems

Article 1 General Provisions

Sec. 1 Definitions:

Unless otherwise expressly stated, whenever used in this chapter the following terms shall respectively be deemed to mean:

33. Refrigerating system: A combination of apparatus in which a refrigerant is or can be circulated for the purpose of extracting heat.

(a) The parts of the system are the compressor, generator, condenser, absorber, receiver, shell type or tube type apparatus, pipes, vessels, or other parts, containing refrigerant.

(b) Direct method of refrigeration: A system in which the evaporator is located in the material or space refrigerated or in air circulating passages communicating with such space.

(c) Direct method of refrigeration: A system in which a liquid, as brine or water, cooled by the refrigerant, is circulated to the material or space refrigerated or is used to cool air so circulated.

(d) Double indirect method of refrigeration: A system in which brine or water cooled by the refrigerant further cools, without direct contact, brine or water which is then circulated to the substance or space to be cooled or is used to cool air so circulated.

(e) Refrigerant is the chemical agent other than brine or water used to produce refrigeration.

(f) Irritant refrigeration: Any refrigerant which when breathed attacks the throat or lungs.

(g) Hydrocarbon refrigerant: Any refrigerant composed exclusively of hydrogen and carbon.

(h) Flammable refrigerant: Any refrigerant which, when mixed with air under the most favorable conditions to support combustion, forms more than a weakly combustible mixture.

(i) Refrigerating machinery room: A room in which is located a refrigerating system containing a refrigerant, but not including evaporators when located in cold storage rooms, refrigerator boxes, or other spaces to be refrigerated.

(j) Pressure imposing element: That apparatus which draws the refrigerant from the low pressure or low temperature side of the system and discharges it into the high pressure or high temperature side of the system.

(k) Pressure limiting device: A pressure or temperature responsive mechanism for automatically stopping the operation of the pressure imposing element.

(l) Brine: Any liquid which having been cooled by the refrigerating system is used for the transmission of heat.

(m) Pressure relief device: A pressure relief valve, a rupture member for relieving the pressure.

(n) Pressure relief valve: A valve held shut by a spring to automatically relieve pressure in excess of its setting.

(o) Rupture member: A device that will automatically rupture at a predetermined pressure.

(p) Liquid receiver: A vessel permanently connected to a system by inlet and outlet pipes for storage of a liquid refrigerant.

(q) Container: A cylinder for the shipment of refrigerant constructed to conform to the regulations of the Interstate Commerce Commission.

(r) Air conditioning: Cooling of air for human comfort and/or for aid in the processing of materials, by means of a refrigerating system.

(s) Evaporator: That part of a system in which refrigerant is expanded or vaporized to produce refrigeration.

(t) Expansion coil: An evaporator constructed of pipe or tubing.

(u) Public buildings, business buildings, and residence buildings are buildings as so defined by Section 70, Article 4, of the Building Code of the City of New York.

NOTE: **Public Buildings:** Public buildings are buildings or parts of buildings in which persons congregate for civic, political, educational, religious or recreational purposes, or in which persons are harbored to receive medical, charitable or other care or treatment, or in which persons are held or detained by reason of public or civic duty, or for correctional purposes, including among others, court houses, schools, colleges, libraries, museums, exhibition buildings, lecture halls, churches, assembly halls, lodge rooms, dance halls, theaters, bath houses, hospitals, asylums, armories, fire houses, police stations, jails, and passenger depots.

NOTE: **Residence Buildings:** Residence buildings are buildings or parts of buildings in which sleeping accommodations are provided, except such as may be for other reasons classed as public buildings, including among others, dwellings, tenement houses, hotels, lodging houses, dormitories, convents, and studios, and

club houses having sleeping accommodations.

NOTE: **Business Buildings:** Business buildings are buildings or parts of buildings, which are not public buildings or residence buildings, including among others office buildings, stores, markets, restaurants, warehouses, freight depots, car barns, stables, garages, factories, laboratories, smoke houses, grain elevators, and coal pockets.

Article 3 Bonds and Fees

Fees for Permits.

Applicants for permits under the provisions of this chapter shall pay annual fees as follows:

35. Refrigerating systems:	
Class A systems containing over 1,000 lbs.	\$20
Class B systems containing 100 to 1,000 lbs.	10
Class C systems containing 20 to 100 lbs.	6
Class D systems containing 6 to 20 lbs.	4
Class E systems containing less than 6 lbs.	1

Article 18 Refrigerating Systems

Section 216. Permits and approvals.
Section 217. Supervision.
Section 218. Classification.
Section 219. Permissible locations.
Section 220. Machinery rooms.
Section 221. Ventilation.
Section 222. Air conditioning.
Section 223. Open flames and electrical equipment.
Section 224. Testing.
Section 225. Piping.
Section 226. Safety devices.
Section 227. Operating precautions.

Sec. 216. Permits and Approvals.

(a) No person shall maintain and/or operate a refrigerating system without a permit.

(b) Exemptions—no permit, however, shall be required to maintain and/or operate a refrigerating system in the residence portion of any building.

(c) No permit shall be issued until the installer has filed satisfactory proof with the Fire Commissioner that the system has been installed in accordance with the requirements of this article.

(d) No refrigerating system shall be maintained or operated employing a refrigerant other than those specified in this article without a permit issued upon such conditions as are deemed by the Fire Commissioner necessary in the interest of public safety.

(e) No refrigerating system shall be installed, serviced, or repaired by any person or persons who have not obtained a certificate of qualification from the Fire Commissioner. Such certificate of qualification shall be issued by the Fire Commissioner to any person or persons who shall establish satisfactory evidence of his competence by training and experience.

(a) No refrigerating system containing more than 100 lbs. of refrigerant shall be operated in any building except under the personal supervision, direction or control of either a duly licensed engineer or a person who has obtained a certificate of qualification to operate such a system from the Building Department. Where the system contains not more than 200 lbs. of refrigerant and is fully automatic only one qualified operator will be required. An engineer or operator shall not supervise or operate refrigerating equipment in more than one building.

(b) The total number of pounds of refrigerant common to a system shall be considered the capacity of the system and determine its class, as follows:

Class A systems containing over 1,000 lbs.
Class B systems containing 100 to 1,000 lbs.
Class C systems containing 20 to 100 lbs.
Class D systems containing 6 to 20 lbs.
Class E systems containing less than 6 lbs.

(b) For the purpose of this article, refrigerants shall be classified as non-irritant or irritant, and further as flammable or non-flammable.

Sec. 219. Permissible Locations.

(a) No refrigerating system shall be installed or maintained in or on the stairways, halls, entrances, exits, or auditoriums of any building.

(b) No refrigerant shall be carried throughout any building, or from one building to another, by means of piping, except:

1. When confined in any business building used exclusively for manufacturing, processing or storage, including among others ice making, cold storage warehouses, meat packing, slaughter house, ice cream manufacture, candy manufacture, dairy, fur storage, when not more than 20 people are employed above the first floor in such occupancies.

2. When not carried above the first floor in a business and/or residence building.

3. When confined to the space of any one floor in a business and/or residence building occupied by a single tenant.

4. When confined to the space in a one or two family dwelling occupied by a single tenant.

5. When confined to the roof and top floor of a single occupancy in a business building.

6. When the refrigerant employed is non-irritant and non-flammable.

(c) No refrigerating system employing ammonia or sulphur dioxide may be installed and operated in any building or

Table 1

Refrigerant	Chemical Symbol	Classified as
Ammonia	NH ₃	Irritant and non-flammable
Butane	C ₄ H ₁₀	Non-irritant and flammable
Carbon Dioxide	CO ₂	Non-irritant and non-flammable
Dichlorodifluoromethane (Freon) (F-12)	CCl ₂ F ₂	Non-irritant and non-flammable*
Dichlorotetrafluoroethane (F-114)	CCl ₂ F ₄	Non-irritant and non-flammable*
Dichloromethane (Methylene Chloride) (Carrene No. 1)	CH ₂ Cl ₂	Non-irritant and non-flammable*
Dichloromonofluoroethane (F-21)	CHCl ₂ F	Non-irritant and non-flammable*
Dichloroethylene	C ₂ H ₂ Cl ₂	Irritant and flammable
Ethane	C ₂ H ₆	Non-irritant and flammable
Ethyl Chloride	C ₂ H ₅ Cl	Non-irritant and flammable
Isobutane	(CH ₃) ₂ CH	Non-irritant and flammable
Methyl Chloride	CH ₃ Cl	Irritant and flammable
Methyl Formate	CH ₃ COOH	Irritant and flammable
Propane	C ₃ H ₈	Non-irritant and flammable
Sulphur Dioxide	SO ₂	Irritant and non-flammable
Trichloromonofluoroethane (F-11) (Carrene No. 2)	CCl ₃ F	Non-irritant and non-flammable*
Trichlorotrifluoroethane (F-113) (Carrene No. 3)	C ₂ Cl ₃ F ₃	Non-irritant and non-flammable*

*Note—Irritant when used in a room in which an unvented flame is present.

that part of a building used as a:

1. Theater and/or motion picture theater with seating capacity of more than 50 persons.

2. Hospital and/or asylum where persons are confined and/or helpless.

3. Department store of more than one story, except where the refrigerant is confined in a machinery room located on the roof.

4. Court room, jail, police station, subway, waiting room or public room in a railroad passenger depot or a room opening directly therein, dance hall, or dance hall and cabaret.

5. School or college unless the refrigerating system be of the hermetically sealed approved unit type and contains not more than six lbs. of refrigerant, or unless the system is used exclusively for instruction or research purposes.

6. Exhibition hall such as the Grand Central Palace, Madison Square Garden, or Armory.

7. Public building as so defined by Section 70, Article 4 of the Building Code of the City of New York, except as provided in paragraph (c) of this Section.

(d) No refrigerating system employing more than 10 lbs. of irritant and/or flammable refrigerant, other than ammonia or sulphur dioxide, shall be used in any one room in a public building unless:

1. The system or systems are of the unit type hermetically sealed and for which a certificate of approval has been issued by the Fire Commissioner, to the manufacturer, or unless:

2. The entire system or systems are confined in a vapor-proof refrigerating machinery room user for no other purpose and in which no open flame or apparatus to produce an open flame is used.

(e) No brine shall be used in any brine circulating system that will generate flammable vapor at a temperature below 100° F. when tested in a Tagliabue open cup tester, and no irritant and/or flammable refrigerant shall be used as a brine.

(f) Any system employing a hydrocarbon refrigerant in excess of 20 lbs. shall not be installed or maintained in the built-up sections of the city.

Sec. 220. Refrigerating Machinery Rooms.

All rooms in which an irritant refrigerant is employed and all rooms into which by accident an irritant refrigerant may be circulated by means of air-conditioning ducts or otherwise, must be provided with tight self-closing doors or doors and such other means as is deemed necessary to prevent the passage of an irritant refrigerant to other parts of the building occupied by another tenant.

Sec. 221. Ventilation.

(a) Each room in which any refrigerating system is used must be provided with means for adequate ventilation to the outer air in accordance with the requirements as set forth in Table No. 2, except spaces through which pipes carrying the refrigerant pass.

Table 2

Pounds of refrigerant in system	Mechanical cu. ft. per minute discharge	Mechanical sq. ft. duct area	Window or door area in sq. ft. for one side only
A	B	C	D
up to 20	150	1/4	6
50	250	1/2	12
100	400	3/4	16
150	550	1	19
200	680	1 1/4	25
250	800	1 1/2	29
300	900	1 3/4	32
400	1,100	2	38
500	1,275	2 1/4	42
600	1,450	2 1/2	45
700	1,630	2 3/4	48
800	1,800	3	51
900	1,950	3 1/4	55
1,000	2,050	3 1/2	59
1,250	2,350	4 1/4	68
1,500	2,800	5 1/4	78
1,750	3,150	6	87
2,000	3,500	6 3/4	95
2,500	4,150	8 1/4	113
3,000	4,500	9 1/4	130
4,000	6,000	12 1/4	167
5,000	7,500	15 1/4	204
6,000	9,000	18 1/4	241
7,000	10,500	21 1/4	278
8,000	12,000	24 1/4	315
9,000	13,000	27 1/4	342
10,000	14,000	30 1/4	360
12,000	17,000	36 1/4	425
14,000	19,000	42 1/4	470
16,000	22,000	48 1/4	540
18,000	24,000	54 1/4	580
20,000	26,000	60 1/4	630
25,000	33,000	75 1/4	760
30,000	39,000	90 1/4	870
35,000	44,000	105 1/4	940
40,000	51,000	120 1/4	1,060
45,000	56,000	135 1/4	1,120

unless two pressure relief valves of required size are used and so arranged that only one pressure relief valve can be cut off for repair purposes at any one time.

(d) The discharge from pressure relief valves, when an irritant refrigerant is used, must be piped to the outside of the building with the outlet orifice turned downward. The discharge from more than one relief valve may be run into a common header, the area of which shall be equal to the area of the pipes connected thereto.

(e) The size of the free diameter for pressure relief valves shall not be less than as follows:

For Class A systems 1 in.
For Class B systems 1 1/2 in.
For Class C systems 1/4 in.
For Class D systems 1/4 in.
For Class E systems 1/4 in.

(f) Pressure relief valves shall be placed above the liquid refrigerant level and set to relieve at not more than the values in pounds per square inch as set forth in Table No. 3.

The value in Table No. 3 are the vapor pressures of the refrigerants at 127° F. except for high pressure refrigerants where the values are calculated by multiplying the gauge pressure in pounds per square inch at the critical temperature by the factor 1.5.

Table 3

Refrigerant	Value in lbs. per sq. in.
Ammonia	300
Butane	64
Carbon Dioxide	1585
Dichlorodifluoromethane (Freon) (F-12)	173
Dichlorotetrafluoroethane (F-114)	52
Dichloromethane (Methylene Chloride) Carrene No. 1	8
Dichloromonofluoroethane (F-21)	45
Dichloroethylene	0.5
Ethane	1075
Ethyl Chloride	39
Isobutane	93
Methyl Chloride	155
Methyl Formate	15
Propane	240
Sulphur Dioxide (Esotoo)	116
Trichloromonofluoroethane (F-11) (Carrene No. 2)	23
Trichlorotrifluoroethane (F-113) (Carrene No. 3)	2

(g) Where rupture members are permitted and used, the equivalent area of the relief valve specified must be provided.

Sec. 227. Operating Precautions. 1. Masks and Helmets.

(a) At least two masks or helmets for each Class A system and one mask or helmet for each Class B system, in which an irritant refrigerant is used, shall be provided and kept in good condition.

(b) Canisters or cartridges shall be renewed at least once every two years and the date of filling shall be marked thereon.

(c) Only complete helmets or masks marked as approved by the United States Bureau of Mines and suitable for the refrigerant employed shall be used and shall be kept in a suitable cabinet immediately outside the machinery room.

2. Signs

(a) Each refrigerating system shall be provided with an easily legible metal sign permanently attached and easily accessible, giving the kind and total number of pounds of refrigerant contained in the system.

(b) Systems containing more than 100 lbs. of refrigerant shall be provided with metal signs having letters of not less than 1/2 in. in height designating the main shut off valves to each vessel, main steam or electrical control, remote control switch, pressure limiting device, and on all exposed high pressure and low pressure piping in each room where carried outside the machinery room.

(c) Each pressure relief valve shall be labeled by an easily legible permanent tag designating its setting in pounds per square inch.

3. Storage of Refrigerant

(a) Not more than two containers, as prescribed by the Interstate Commerce Commission for the transportation of the refrigerant contained in it, shall be stored in a Class A or Class B machinery room.

(b) No refrigerant other than that employed in the system shall be stored in a Class C machinery room.

(c) Irritant and/or flammable refrigerants in excess of that permitted in the machinery room shall be stored in a fire-proof shed or room used for no other purpose.

(d) Refrigerants withdrawn from systems shall be transferred to containers as prescribed by the regulations of the Interstate Commerce Commission for the transportation of such refrigerant. No refrigerant shall be discharged to a sewer or to the open air except through pressure relief valves.

(e) No container shall be left connected to a system except while charging or withdrawing.

NOTE: None of the provisions of this Code is retroactive unless deemed necessary by the Fire Commissioner in the interest of public safety.

Article 26 Miscellaneous

Sec. 300. Violations.

Any person who shall wilfully violate or neglect or refuse to comply with any provisions of this chapter, in addition to any other penalties prescribed by law or ordinance, shall, upon conviction, be punished by a fine of not more than \$500.00 or by imprisonment not exceeding six months, or by both such fine and imprisonment.

C. K. Michaels, Engineering Inspector, Room 1100 Bureau of Combustibles, Fire Department, New York City.

Extra Dry ESOTOO
LIQUID SULPHUR DIOXIDE

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METHYL CHLORIDE

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ENGINEERING

Riley Introduces New Line of Valves and Fittings

(Continued from Page 1, Column 5)
plant. Chief aide to Mr. Riley on the engineering phases of the business is Owen F. Nelson, refrigerating engineer.

The automatic expansion valve is featured by a "full floating" valve needle which floats freely in a ball socket without the restraining action of any guide.

The valve needle is carried in a floating arrangement in a bell crank which is in turn supported in two ball-shaped centers which are soldered in place after assembly. For an illustration of this arrangement, see picture (Fig. 1) of the thermostatic expansion valve.

Mr. Riley claims that the needle and seat are constantly flushed by the incoming refrigerant, and sediment or oil immediately pass through the outlet connection.

The automatic valve has an adjustable range from a 25-in. vacuum to 25 lbs. of pressure, and special adjusting springs can be furnished for higher pressures. Standard valve orifices are .078 in., while .093, .125, and .156-in. orifices are furnished on order for Freon and certain sulphur dioxide applications.

The bellows is soldered to the valve, providing a gas-tight joint, the designers state, and the bellows chamber is moisture-tight. Cocking of the bellows does not affect the needle because of its "floating" characteristics.

Valves for sulphur dioxide or Freon have a tough special alloy needle and a stainless steel seat. For methyl chloride valves, another alloy which is highly resistant to hydrochloric acid is provided. Standard inlet fittings, with a fine mesh screen, is a 1/4-in. S.A.E. flare, while the standard outlet is a 1/4-in. female pipe tap.

Thermostatic Expansion Valve

"Thermostatic expansion valves, as distinguished from the automatic type (which merely maintains a constant vapor pressure without regard to superheat) permit a more variable usefulness in that they maintain a constant superheat—a frosted over condition—in a single evaporator coil, and in multiple installations two or more temperatures may be maintained," Mr. Riley says in announcing his thermostatic valve.

"Briefly, it consists of a regular automatic valve body, needle seat, bellows, and one spring, less the usual adjusting screw and cover, plus a thermostatic power element assembly consisting of a power element (bellows), a capillary tube and thermostatic bulb filled with a volatile liquid, a bakelite actuating pin, the necessary adjusting mechanism, bakelite housing, and a sealing means to prevent moisture from entering the interior of the valve," according to Mr. Riley.

Fig. 1, a section of the Blue Ribbon thermostatic valve, shows these various parts and their relation to each other.

The entire thermostatic power element may be removed from the valve body, and a new one installed, the designers explain, or the pressure element consisting of the thermostatic bellows may be removed as a unit and another one installed, permitting considerable flexibility in service and replacement.

Standard orifice is .093 in. This gives the valve a capacity of about one-half ton of refrigeration on sulphur dioxide at standard ton conditions, about the same on Freon, and approximately a ton with methyl chloride. With a .125-in. orifice, capacities go up to around a ton for sulphur dioxide, about a ton for

Freon, and about two tons with methyl. A .156-in. orifice practically doubles the capacities for the .125 orifice, Mr. Riley figures.

The thermostatic valves are adjustable from a 20-in. vacuum to 45 lbs. pressure without change of springs. To increase the flow of refrigerant, the knurled adjusting nut is turned clockwise, and counter-clockwise to decrease the frost line.

Standard inlet connection is a 1/4-in. S.A.E. fitting with a fine mesh brass screen, and the standard outlet is a 1/2-in. S.A.E. flare tube fitting. A 60-in. length of capillary tube is furnished.

Adapters are available to permit exchange of both thermostatic and automatic valves with certain standard valves common in the refrigeration field.

High Side Float Valves

The Blue Ribbon high side float is a combination float valve and liquid receiver, and is recommended for conventional "open" type compressors, and also where the condensing unit is located in the base of a household refrigerator. A special advantage of the high side float control is the fact that slight leaks cause no operating troubles.

Except for the smallest of the three sizes, the entire charge of refrigerant can be pumped into the shell—which is the way the refrigerator is generally shipped from the factory. This prevents pounding of the needle against the seat, Mr. Riley states.

The valve is of all steel construction, with all joints (except from the header to flange) copper hydrogen welded. The float ball is also of steel, copper hydrogen welded. Needle and seat of the valve are of stainless steel.

A pipe tap and purge plug are provided in the header for rare occasions when a shell might become gas-bound due to the presence of non-condensable gases, according to designers of the valve.

Pressure Reducer

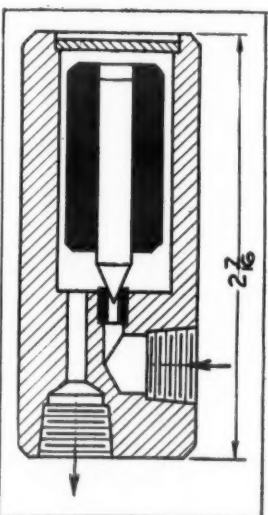


Fig. 2. Pressure reducing valve offered for high side float systems with bottom-mounted units.

To prevent frosting of the suction line with a bottom-mounted compressor, Riley Engineering offers a small pressure reducing valve illustrated in Fig. 2 herewith. The action of this valve actually gives the advantages of two-stage expansion, Mr. Riley declares, and practically eliminates wear and erosion on the needle and seat assemblies of both float and pressure reducing valves.

Thermostatic Expansion Valve

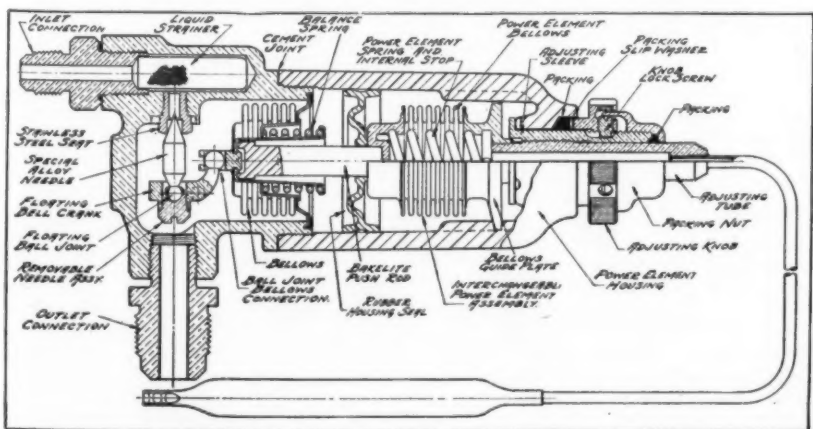


Fig. 1. Section of the new Blue Ribbon thermostatic expansion valve. A new feature in valve construction is the flexible rubber housing seal.

Gauge Connection

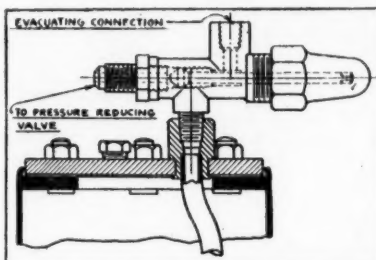


Fig. 3. How to mount a gauge connection on top of a high side float valve.

Because of the fact that modern high side float evaporators do not usually have shut-off valves provided, it is good practice to install one on the outlet of the high side float header, Mr. Riley points out. This may be located as shown in Fig. 3, or in a vertical position, depending on vertical head room.

"With the side outlet as indicated in Fig. 3, the line from the needle valve to the pressure reducing valve may be evacuated by connecting the outlet to the gauge tee connection on the compressor shut-off valve," he states.

Oil Separators With Automatic Oil Return

Of greater interest in commercial than in household refrigeration is the new line of Blue Ribbon oil separators. These consist of a cylindrical shell in which high pressure refrigerant from the compressor is forced through a metal screening affair which removes oil in the gas. When sufficient oil has accumulated in the bottom of the separator, a float ball is raised to valve the oil back to the compressor crankcase.

"Lubricating oils and refrigerants

mix more or less freely, but in varying proportions depending on pressures, temperatures, and on the chemical compositions of the oil and refrigerant," Mr. Riley observes in introducing the oil separator.

"Unless these oils are separated out of the discharge gas from the compressor, they may lodge in the condenser and liquid receiver or settle in evaporators where they become viscous and start to congeal due to the low temperature," he states.

The oil separator and its accompanying automatic oil return (see Fig. 4) is employed to obviate this difficulty. It is installed between the compressor and the condenser.

The separators are large enough in volume to retard velocity of the discharge gas, permitting some oil to settle out. Also the oil-laden discharge gas passes through an oil-scrubbing labyrinth of spirally wound and shredded metal on which the refrigerant-and-oil mixture impinges, the oil remaining on the surface and draining to the bottom of the shell.

Like the high side float valve, the oil separators have hydrogen welded joints. Except for the needle seat on the automatic oil return, all parts are of steel. Shells are pressure-tested for leaks, and the needle, valve, and float assembly are tested for buoyancy and tightness before shipment, Mr. Riley explains.

Larger inlet and outlet connections are furnished with separators to be used with compressors from 3 to 10 tons capacity. These larger models were designed with a view to avoiding the creation of higher head pressures due to restrictions in the oil separating tube, he states.

The oil separating tube leading from the gas inlet connection in these separators is greater in cross section than the gas inlet connection so that restriction of flow is minimized and oil separation begins at once, the designer points out.

He also stresses the importance of (Concluded on Page 16, Column 1)

Oil Separator

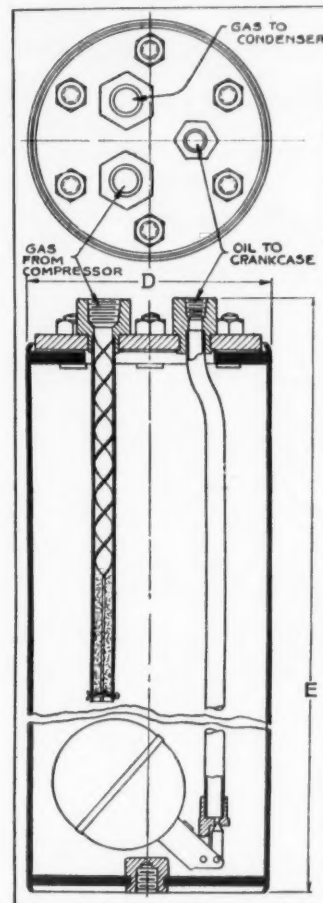


Fig. 4. Riley's smaller oil separator, described herewith. This section is also illustrative of the high side float valve construction, since the high side float is similar to the oil separator.

WHAT

SHOULD A REFRIGERATOR SALESMAN KNOW ABOUT BONDERIZING?

MOST OF THE large, well-known refrigerator manufacturers apply their paint coatings over Bonderized steel. Well up towards 70% of all such cabinets produced are Bonderized as a protection against rust and finish deterioration. This became a trade practice only after careful scientific research to determine its great value.

Bonderizing has become one of the proofs of better manufacture, of quality. Every refrigerator salesman should know about Bonderizing so that

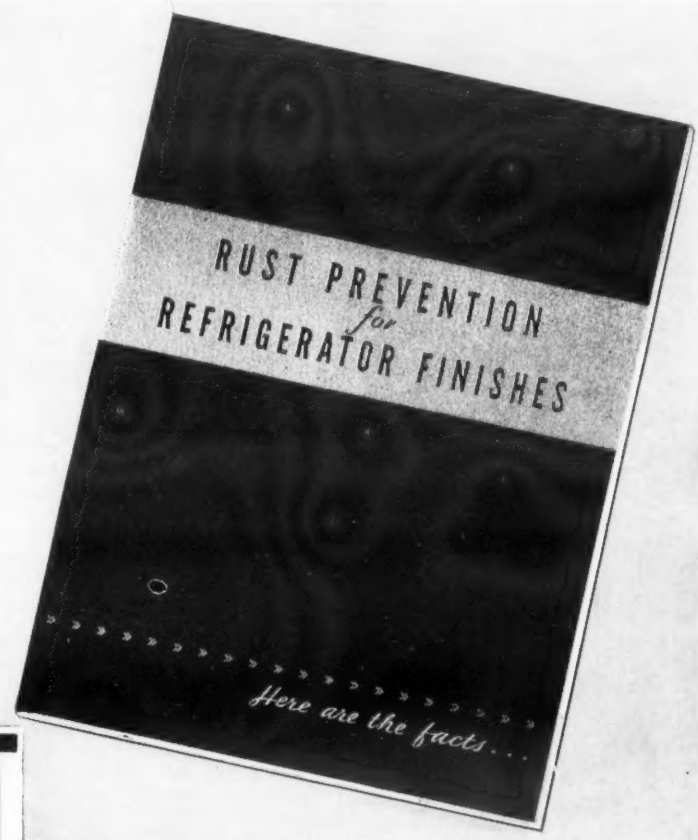
he may take full advantage of this quality feature as a sales argument.

"Rust Prevention for Refrigerator Finishes" is an easily read booklet, wherein are collected pictures, graphs and facts developed scientifically and accurately to show how and why Bonderizing holds paint to steel and makes the final finish far more durable and lasting. Write for your copy today. It will be sent to anyone in the trade, without obligation.

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processes
BONDERIZING • PARKERIZING



ENGINEERING

Riley Line Includes New Service Tools

(Concluded from Page 15, Column 4)
producing an impingement of the gas on oily surfaces, in addition to reducing gas velocity, in order to secure complete separation of oil and gas.

Water Regulating Valve

A compact accessory for commercial systems is Riley Engineering's new pressure controlled water regulating valve, see cross section in Fig. 5. It will be noted that two hydron bellows form the barrier between refrigerant gas and water sections of the valve.

The valve is easily disassembled for cleaning or replacement of the Jenkins type valve disc. To replace the valve disc, the packing body must be removed, the adjusting screw stem turned to the left until it is free, when the packing body, adjusting screw, spring, and valve disc will drop out.

To prevent circulation of water around the plunger bellows, a special insoluble grease is placed around the packing well, Mr. Riley states. The body is of cast bronze, the adjusting stem (1/4-in. square) is of stainless steel.

To raise the condenser pressure by reducing the volume of water flowing through it, the adjusting stem is turned to the right, and conversely to increase the water flow the adjusting stem is turned to the left.

Automatic Suction Pressure Throttling Valve

For installation at or near the suction inlet port of the compressor, the new Blue Ribbon automatic suction pressure throttling valve (Fig. 6) is offered as a means of relieving the initial load imposed on a commercial condensing unit after a shut-down period, particularly when working with flooded evaporators.

When a machine first starts up with a flooded commercial system there is a possibility of overloading the motor due to high back pressures which have built up and are beyond the capacity of the motor to handle continuously. These conditions are indicated by abnormally high head pressures, frequency of cycling, blown fuses, or burned out motors, Mr. Riley says.

Throttling Valve

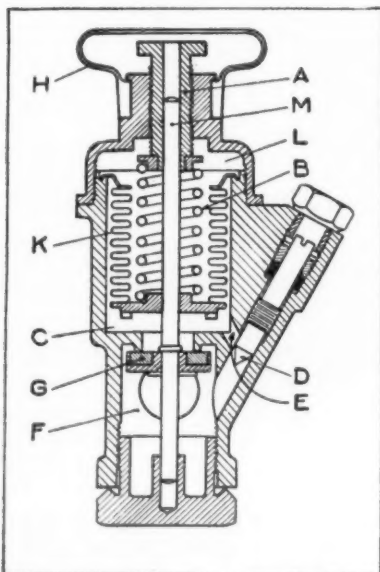


Fig. 6. Suction throttling valve designed to relieve motor overloads on a flooded system after a shut-down.

Suction inlet to the valve is in the bellows chamber above the valve member itself, and the suction gas which surrounds the adjustable spring-loaded bellows builds up sufficient pressure during the shut-down period to close the valve against passage of gas to the crankcase, except for the small adjustable by-pass valve D (see Fig. 6) and orifice E that makes a variable sized passage-way around the large valve G, and in turn permits a balanced pressure on both sides of the choke valve.

Mr. Riley explains that when the compressor starts up, the motor quickly relieves the pressure in the crankcase, and the by-pass valve permits gas from the evaporator to enter the crankcase in a sufficiently reduced volume to avoid an excessive load on the motor.

"The pumping continues until the suction gas pressure in the evaporator has been reduced through the orifice in the by-pass valve until it reaches a pressure previously determined—as less than peak load for the motor—and adjusted by the spring-loading screw A. When this pressure in the evaporator is reached, the adjustable spring B over-balances the gas pressure, and the large valve opens, and normal operating pressures are resumed.

Water Valve

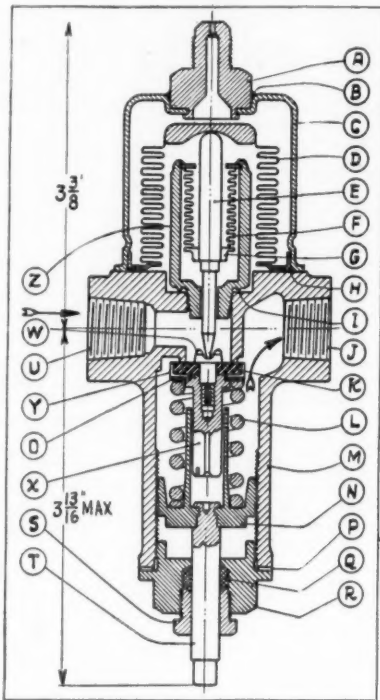


Fig. 5. Water regulating valve.

"The bellows K is open to the atmosphere, and the opening of the large valve is adjusted by the adjusting screw so that the large valve will not open until the pre-determined maximum motor load conditions have been reached. The valve will then open because the adjusting spring has been given the correct amount of compression to permit it to open when the suction pressure is such that the motor can handle the load continuously without overloading," he states.

Adjustment of the by-pass valve is determined by the capacity of the motor to handle suction pressures, and depends on condensing capacity and other factors which cannot be determined in advance, Mr. Riley indicates. To reduce the back pressure starting load, back the adjusting screw out, and vice versa.

The designer points out that if a low pressure control switch is installed between the compressor and the choke valve, the switch must be set to cut out at a pressure below that of the throttling valve setting, otherwise the switch will cut out before back pressure in the evaporator is reduced, because crankcase pressures are reduced almost instantly. When the low pressure control is installed in the suction line between the evaporator and throttling valve, the pressure drop will be gradual—depending on the by-pass opening and ability of the machine to handle the maximum load—and the throttling valve setting can be disregarded as far as the control is concerned.

Two-Temperature Valves

The company is also introducing a line of Blue Ribbon two-temperature valves (see Fig. 7) with a built-in check. These are designed to control temperatures in two or more evaporators operating from a common suction line to a single condensing unit. The temperature of the coldest evaporator controls—through a pressure-stat—the cut-in and cut-out points of all evaporators.

The built-in check is provided to eliminate condensation of refrigerant from higher temperature evaporators into colder evaporators. A separate check valve is offered for connection with the coldest evaporator.

Two Temperature Valve

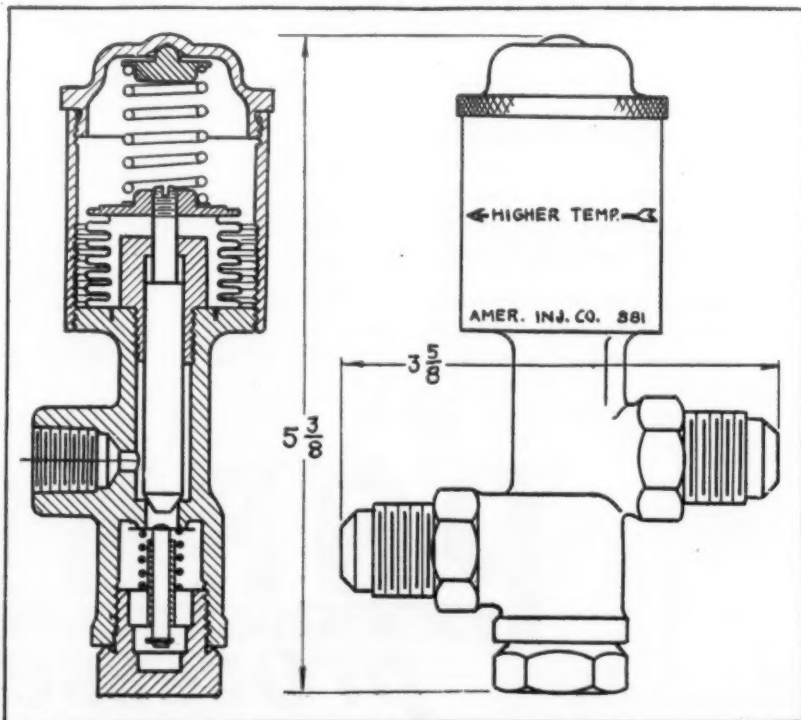


Fig. 7. New Blue Ribbon two-temperature valve for multiple systems.

The valves are offered in two different types, the first as a straight two-way valve, and the second as a three-way valve which can be used in place of the customary tee where the branch line connects with the main suction line.

A gauge connection is furnished on each valve so that a gauge may be installed for regulation of the valve. This is especially useful in installations where evaporators are at some distance from the low-pressure gauge on the compressor, Mr. Riley explains.

A small shut-off valve is usually placed ahead of the gauge, he says, and left there for use if it becomes necessary to change the setting of the two-temperature valve. This also makes it possible to obtain a valve setting by using a hand-operated air pressure and vacuum pump before the valve is installed in the system.

Two-temperature valves may be used with flooded systems, dry evaporators, or combinations of both. Starting and stopping of the compressor motor is always dictated by a suction pressure control.

Valves are adjusted at the factory, Mr. Riley states, and are to be installed as received. Adjustments should be made after the condensing unit is cycling properly.

"When the temperature in the high-temperature coil reaches a certain point, the pressure exerted by it operates a bellows within the valve to lift a stem, allowing the vapor to pass into the main suction line.

"As the temperature is reduced, the pressure within the coil is also reduced until the adjustable spring tension acting on the bellows pushes the valve stem against its seat, and closes off this connection. The condensing unit will then continue to operate on the low-temperature coil without cooling the high-temperature coils.

"Turning the knurled cap clockwise exerts more tension on the spring and causes the coil temperature to rise, while a counter-clockwise lowers the evaporator temperature," Mr. Riley explains.

Valves and Fittings

Riley Engineering Corp. now has a variety of valves and fittings for refrigeration work. These include a line of soft seal packless valves using a double-wall hydron bellows seal, and embraces vertical angle valves, and both two and three-way valves.

A complete line of brass fittings, and hot die-forged refrigeration valves is also offered. In this assortment are shut-off valves, receiver valves, compressor valves, and angle valves.

Liquid Line Filters

Mr. Riley's advocacy of filters and dehydrators for keeping a refrigeration system in good working order is well known to many engineers in the industry.

Dirt, lathe and drill chips, carbon metal oxides, etc. in the system may be cleaned out entirely by an efficient liquid line filter, he says. "If steel tubing is used in the evaporator, a scale tray should also be installed in the suction line," he avers.

Type A filter, whose cross section is shown in Fig. 8, is a small one for use in systems of a household size. Next size, type B, is about 4 1/2 in. long for small commercial work, while type C, the largest filter, is designed to handle the greater amount of scale, oxides, filings, core sand, etc. found in installations erected in the field.

The latter has a finely woven wool cloth bag, 2 in. in diameter and 4 3/4 in. long, with wire mesh backing in the lower end, in addition to the usual double wire mesh with wool felt between at the outlet of the filter.

Dehydrators

Several types of dehydrators have

New Service Tools

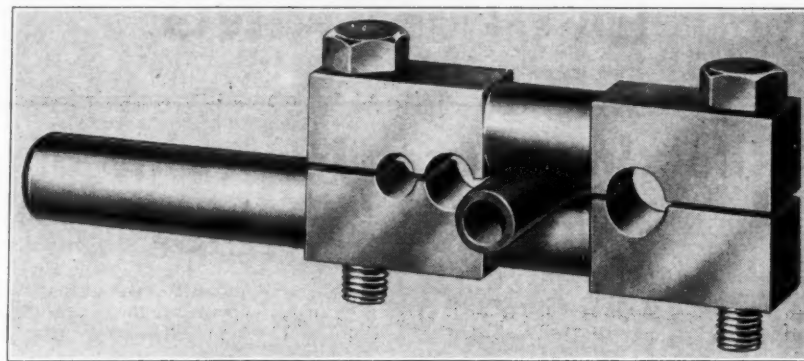


Fig. 9. Riley's Blue Ribbon pinch-off tool for tubing up to 1/2 inch.

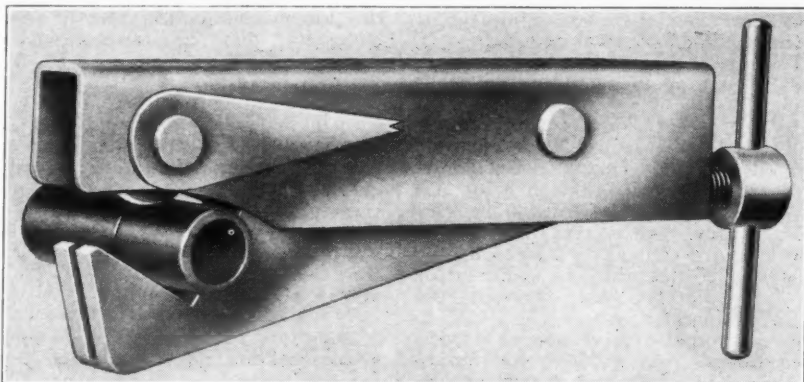


Fig. 10. New type of cut-off tool introduced by Riley Engineering Corp.

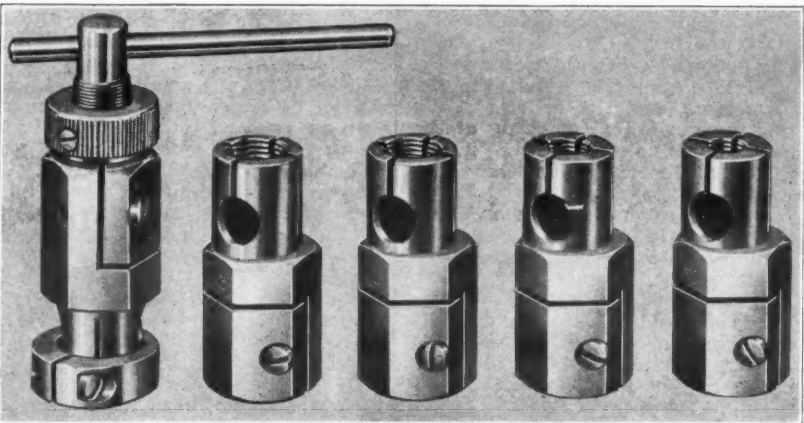


Fig. 11. Reseating and rethreading tools for reconditioning male threads.

Liquid Line Filter

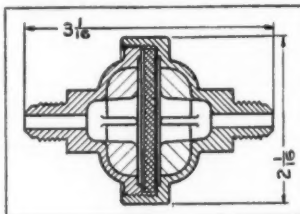


Fig. 8. Small liquid line filter for household or small commercial.

also been developed. These range from a small cartridge 6-in. long and 1 1/4 in. in diameter up to demountable service dehydrators with a 2 1/2-in. o.d. tube, 24 in. long. All models are available for permanent installation or as demountable service accessories.

Calcium oxide, activated alumina, and calcium chloride are offered as dehydrants, or the company will ship dehydrators unfilled. Mr. Riley expresses no preferences in dehydrants, but warns against leaving calcium chloride in the system for more than several days.

"Calcium oxide is perhaps a safer agent to use," he says, "as it causes less trouble if it gets into the system. Activated alumina does not disintegrate with any of the refrigerants if left in the system, however, it does not have quite the absorbing capacity of the other agents."

Acid Neutralizers

Moisture in sulphur dioxide systems reacts to form sulphurous acid, while in methyl chloride systems it sometimes results in the formation of hydrochloric acid, Mr. Riley states.

"Both are destructive in their action on metals, either forming heavy gummy deposits, or setting up a very active erosion and corrosive action, especially in metering valves.

"Acid in sulphur systems can be neutralized or prevented from forming by a relatively small quantity of zinc moss in a dehydrator shell, or a small quantity can be placed in one end of a dehydrator along with the dehydrating agent by merely placing screen or felt separators between the two materials," he points out.

Accordingly, all Blue Ribbon dehydrators are available with a fill of zinc moss as acid neutralizers.

Parts and Materials

Replacement parts and accessories have been devised by the company to serve a variety of refrigeration needs. Among these are such items as pressure reducing valves (for use in connection with high side float valves), expansion valve breather

caps, clamps for the thermal bulb of thermostatic valves, expansion valve inlet and outlet adapters and gaskets, screens, felt filter discs, fusible plugs, couplings, hand pumps for setting pressure controls before installation, gas masks for various refrigerants, Clifford's hydron bellows, complete shaft seals, etc.

In this same category is a water strainer to keep water flowing into a condenser free of foreign matter, suction line strainers, dehydrating agents, and O-So-Tite, a sealing material which is recommended for sealing joints for all common refrigerants.

Service Tools

Of special interest to service and installation men is Riley's brand new line of service tools, each of which has a number of novel features.

First of these is a tube flaring tool which, with a single tube clamp, accommodates 1/4, 5/16, 3/8, 7/16, 1/2, and 3/4-in. tubing. The clamp is of high carbon steel, heat treated. The screw is bottomed in the hardened cone before pinning.

Next there are two new Blue Ribbon pinch-off tools, see Fig. 9. These are of high grade cadmium plated steel with hardened steel cap screws which can be run down with an ordinary wrench. They take any size of tin or copper tubing up to 1/2 in.

Another service accessory is a new cut-off tool, see Fig. 10. In this the V bar is held rigidly between heavy channel steel sides which Mr. Riley claims cannot get out of alignment or cut a thread in the tube. Sufficient leverage is provided to cut through any tubing up to 3/4-in. size.

The cutter wheel is of back saw blade stock, hardened and ground to a cutting edge. When not in use, the cutter is folded up out of any danger like a jack-knife so the whole tool can be carried in a service man's pocket.

For reconditioning male fittings which have broken threads or marred flare ends, a new type of reseating and rethreading tools is offered, see Fig. 11. These have a single cutter with an adjustable feed designed to prevent any chatter marks. The cutter can be sharpened, or a new one installed in the tool.

An eccentric clamp is provided to make a secure grip on S.A.E. male threads and reface the flare ends so that it is square with the threads. It also assures a good fit on either under or over size threads. Threads of the various size tools are hardened, and will rethread any flare end, almost regardless of its condition, Mr. Riley declares.

Completing the assortment of service tools are mechanical tube benders, coil spring tube benders, and a set of refrigeration service tools.

STATISTICS

Radio Sales Hit New Record of 5,350,000 Sets in 1934

THE beginning of the fifteenth year of radio broadcasting finds the "era of ether" entrenched so deeply in all the ramifications of modern life that few pause to realize that it was only on Nov. 2, 1920, that the opening of the first station started a movement which has revolutionized the thought and action of the entire world. In its development, the production and distribution of radio receiving sets have founded an industry, the rapid progress of which is without parallel in contemporary commercial achievements.

Even from the last few years of economic difficulties, the industry has emerged with the interest in its products at a new high pitch, manufacturers having proven their versatility and resourcefulness by rising above the adverse circumstances encountered.

During the past year there has been an almost uninterrupted month-to-month gain in sales, with demand impervious to the usual period of summer dullness, due to the extended popularity of automobile and portable sets.

The introduction of the all-wave set at a price within the easy reach of the multitude has been one of the outstanding contributions to the new peak levels set by distribution.

Broadcasting stations also have furnished bolstering support to the wider use of the radio, as never in the history of the industry have programs of such comprehensive variety and recognized quality been provided to hold the listeners' interest at all hours of the day and night and to bring additional followers into the growing "audience of the air."

Although all previous records were outdistanced during 1934, current indications reveal a stronger upturn of demand during the first quarter of 1935, with some new peaks to be established during the last six months of that year, according to a survey of the radio industry, which has just been completed by Dun & Bradstreet, Inc.

Sales at New Peak

In spite of the encouraging progress made during the first six months of the current year, the increase in sales has been abrupt since the new models were displayed early in the fall. In the comparison with the totals for the corresponding period of 1933, losses were reported in no parts of the country, while the increases ranged from 25 to 100 per cent.

The cheaper sets have been bought freely, but the proportion is not so large as it was last season, as there has been a decided shift to the higher-priced all-wave sets during the last three months. Based on the returns

for the elapsed 11 months, with the returns of the Christmas season yet to be tallied, it is estimated that sales for the country, as a whole, average 40 per cent larger than for the comparative period of 1933.

This would bring total sales for 1934 around 5,350,000 sets, as compared with the previous peak of 4,438,000 units set down for 1929.

From 60 to 65 per cent of the units sold represented replacements, which is about the same ratio as in 1933, as new enthusiasts are being added daily to the country's radio audience. Considerable replacement business has been received from agricultural districts, where sales had been few more than three years, owners now turning in their old sets for the new all-wave models.

The many pay-offs during the year, which gave consumers money which had been considered lost, the higher prices for cotton, tobacco, and the general run of farm products, which placed more cash in agricultural districts than in five years, and the steadier trend of employment have permitted deferred desires for radio ownership to be satisfied to the freest extent possible since 1929.

Wider Interest in Broadcasts

The increased hours of leisure, the perfection of the all-wave receivers, and especially the improvement and extension of broadcasting programs have been responsible for the unprecedented expansion which interest in the radio has attained this year. Unquestioned proof of the growing popularity of this form of entertainment and instruction is provided by the record sums of money being spent for time on the major networks of the country.

In October, the highest sales in broadcast history were reached at \$4,527,000, a gain of 59 per cent over the 1933 comparative figures, and 49.1 per cent higher than in October, 1932.

For the 10 months of 1934, these sales amounted to \$33,780,000, or 38.8 per cent ahead of the 1933 comparative figures, and 2.2 per cent in excess of the 1932 total, which represented the all-time high.

This increase has enabled some of the broadcasting companies to declare extra dividends, while others are planning to take care of accumulated dividends, as profits now generally have replaced the losses of 1932 and a part of 1933.

Price Trend Upward

Wide fluctuations in prices have been absent since last spring, and the current level is holding steady at 10 to 25 per cent higher than at this period a year ago. The present firm-

ness, however, is inclining upward, and advances already have taken place in some of the medium and better grades of console types of all-wave sets.

The popularity of the smaller radio sets, however, apparently is waning, as the price inclination in this division is downward. Manufacturers thus far have succeeded in withholding from retailers most of the increases which have resulted from the higher operating costs under the code. As this policy, however, has made heavy inroads on profits, substantial upward revisions may become necessary next spring.

The status of general collections is reported as the most satisfactory that has obtained since 1929. In the retail division it has been particularly satisfactory, and wholesalers have received payment in full on some old accounts which were carried over from last year. Collections on deferred-payment sales have been kept up to date in most districts, with repossessions the fewest in many years.

Failures Drop to New Low

The stronger financial position which all members of the industry now have achieved, as compared with their condition during the three preceding years, has brought bankruptcies almost to a complete stop. For the 11 months of 1934 only six manufacturers failed, with the involved liabilities \$526,630, as compared with 25 defaults entailing a loss of \$3,719,519 for the 12 months of 1933.

Among the wholesalers and retailers the reduction in the number of bankruptcies was even more decisive, the total dropping from 109 for the 12 months of 1933 to 33 for the 11 months of 1934. The sum of the involved liabilities, however, was little changed in this division, as one large wholesaler had a defaulted indebtedness of more than \$1,000,000, which pushed the total for the 11 months up to \$1,621,283, or only slightly under the \$1,813,980 recorded for 1933.

The complete insolvency record of the radio industry since 1930, including January to November, inclusive, of 1934, as compiled by Dun & Bradstreet, Inc., shows:

MANUFACTURERS

Year	Number	Liabilities
1930.....	40	\$3,522,400
1931.....	15	4,058,445
1932.....	23	1,826,955
1933.....	25	3,719,519
1934*.....	6	526,630

WHOLESALES AND RETAILERS

Year	Number	Liabilities
1930.....	217	\$2,071,392
1931.....	160	4,979,359
1932.....	170	1,978,678
1933.....	109	1,813,980
1934*.....	33	1,612,283

(* January to November, inclusive.)

LETTERS ON STATISTICS

Life of Refrigerators

General Electric Co.
1 River Road
Schenectady, N. Y.

Editor:

I am attempting a mathematical approach to the question of saturation in the electrical refrigerator market. This will involve the fitting of trend lines to the curves for the "number of domestic electrical customers" and of the total "number of domestic electrical refrigerators in use." I would appreciate it very much, then, if you would send me your comments on the following questions.

1. In your tabulation, page 472 of the 1934 REFRIGERATION DIRECTORY, you have listed the total sales by years of all U. S. manufacturers. Could you estimate for me the degree of accuracy of these figures, and perhaps tell me the types of sources used for the compilation.

2. You have carried the table back year by year to 1920. These figures, I presume, should be corrected in cumulative form as you have done for the final sum of 5,855,000. Do you have figures on the exports, unsold stocks, and estimates of the obsolescence and replacement for each of these years?

3. What method have you used to calculate the figure of 800,000 units estimated for obsolescence and replacement? We presume that this is based upon the expected life of the unit.

ARTHUR A. MERRILL,
Industrial Engineering Dept.

Answer: With regard to the estimated sales of household electric refrigerators shown on page 472 of the 1934 REFRIGERATION DIRECTORY, the figures through 1930 were confidentially given to ELECTRIC REFRIGERATION NEWS by the chief executives of 20 leading manufacturing companies operating in the refrigeration field. This first authoritative record of total industry sales ever compiled was published in the Jan. 14, 1931 issue of the NEWS. The companies included represented about 97 per cent of total industry production at that time.

When the Refrigeration Division of National Electrical Manufacturers As-

sociation (Nema) first began to compile statistics in 1931, taking the records back to include the years 1928 through 1931, the "low side" was adopted as the standard of measurement in place of the "high side" which had been the yardstick used for the original figures given ELECTRIC REFRIGERATION NEWS.

The estimates compiled by the NEWS were, therefore, revised on this basis. Since that time, sales have been recorded in number of low sides.

For the years since 1930, the NEWS has made a survey at the beginning of each year among manufacturers who are not members of Nema. The results of these surveys have been added to the Nema total each year to obtain an all industry figure. In the majority of instances, sales figures were given by non-Nema companies directly, but it was necessary to contact various sources of supply, such as manufacturers of controls and evaporators, to determine their sales of parts to these producers who did not report to us.

The estimates given on page 472 of the DIRECTORY in all cases represent sales by manufacturers to their distributors and dealers rather than actual consumer sales. The final results depend for their accuracy upon the reliability of figures received from non-Nema manufacturers and the accuracy of estimates received from various suppliers. During 1930 and 1931, Nema companies made about 84 per cent of industry sales; about 80 per cent of the total during 1932, and about 84 per cent in 1933.

During the current year, we have estimated that Nema companies are responsible for approximately 88 per cent of industry sales.

Considering the subject of obsolescence and replacement in past years, this fact was not assumed to be of great importance till 1931, because of comparatively small sales in the years previous to 1926.

Our record of unit exports of household electric refrigerators dates back to 1929, and these figures are given on page 561 of the DIRECTORY.

Concerning unsold stocks in the hands of distributors and dealers, it has been the custom each year to take the December figures for Nema companies plus a reasonable increment for non-Nema manufacturers for deduction from total sales.

The determination of an accurate method of estimating obsolescence and replacement has proved considerable of a bug-bear. Last year, we worked on the assumption that the average household unit has an average life of somewhere in the vicinity of 10 years, and plotted a hypothetical curve indicating the number of units sold each year in the past which roughly might be assumed to have been eliminated by the beginning of 1934, thus arriving at the total of 800,000 units.

This method has been used in determining obsolescence and replacement in the automobile field. However, while estimates for automobile saturation may be considered to be between 95 and 100 per cent correct, no such claims can be made for the refrigeration figure. This is due to the fact that refrigerators are not subject to periodic registration as are automobiles.

There is, therefore, no method of tracing the life history of any particular group of refrigerators. The figure of 800,000 units for estimated obsolescence and replacement is, of course, open to debate and will probably be subjected to revision at the end of this year.

At the present time, we are attempting to apply the statistical method used in the automobile industry for determining eliminations of past sales for the refrigeration unit. We hope to obtain a curve which may roughly be considered to indicate such elimination.

Some time ago, with the object of estimating the expected life of a refrigeration unit, we sent letters to a number of the large manufacturers of household refrigeration units, General Electric included, asking for their opinion as to the average expected life of a refrigeration unit. Where replies were received, a great deal of variance was shown in the answers.

No estimate was received for General Electric units, although W. W. Campbell wrote to the effect that you were interested in the subject of obsolescence and replacement. If you could give some idea of the average expected life of a General Electric unit, it would materially assist us in carrying on our work in this regard.

Saturation in U. S., Canada

Canadian Westinghouse Co., Ltd.
400 McGill St., Montreal, Quebec

Editor:

We are in the process of making up a small French sales kit for use in the Province of Quebec in the sale of Westinghouse electric refrigerators and in the introduction to the subject of refrigeration, we wish to mention that "one out of every three families in the United States and Canada now possesses an electric refrigerator."

From the figures that you have, is this correct? If not, what do you think is the proper proportion? We would also appreciate very much

securing an estimate from you of the total number of electric refrigerators in use in Canada and the United States.

B. L. CASSIDY,
Sales Promotion Division.

Answer: We do not believe that you would be safe in saying that one out of every three families in the United States and Canada now owns an electric refrigerator. From the estimates of electric refrigerator saturation which we have compiled, it would probably be correct to say that one out of four families in the United States now owns an electric refrigerator—this being a saturation of about 25 per cent.

The saturation in Canada is probably not nearly as high.

Although our estimates of refrigerator saturation as of Jan. 1, 1935, have not as yet been compiled, we believe the saturation for the United States will be approximately 30 per cent of the total number of wired homes—the number of wired homes being our basis for determining saturation. In determining ownership among families, we must take into consideration the fact that not all homes are wired. We believe that, roughly speaking, 25 per cent would be a fairly accurate family-ownership figure for your purposes.

There are now somewhere in the vicinity of 6,000,000 household electric refrigerators in use in the United States only. We can not make an estimate covering the United States and Canada both, as we do not have a complete record of Canadian sales, in all past years.

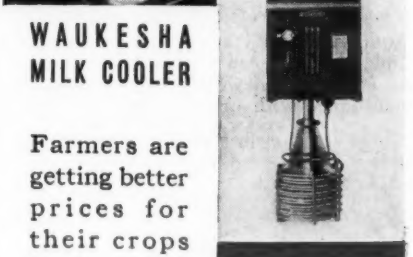
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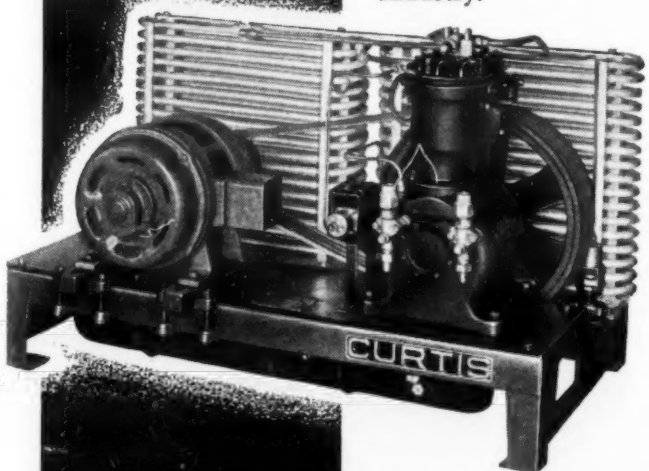
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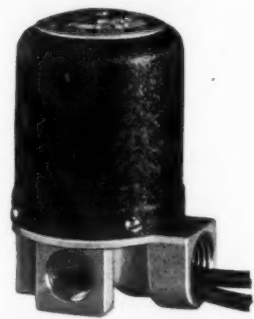
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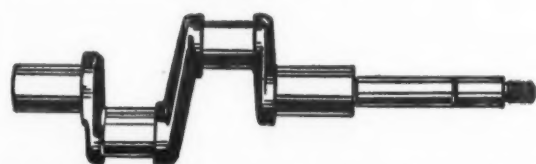
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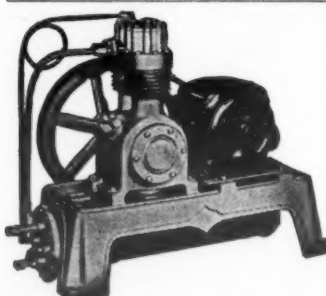
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PATENTS

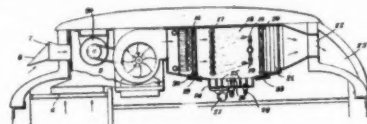
Issued Jan. 1, 1934

1,985,909. WINDOW CONSTRUCTION FOR REFRIGERATORS. William H. Ziepk, Hollis, N. Y., assignor to J. G. Braun Co., Inc., a corporation of Illinois. Application June 17, 1932. Serial No. 617,748. 2 Claims. (Cl. 20-56.5.)

1. In a refrigerator, or the like, a frame defining a window opening, a window therein comprising a plurality of panes of glass of the same size, channel shaped rubber gasket members secured about the edges of the glass panes, plates fixedly secured to the members of the frame, movably clamping plates, the plates having opposed parts to receive the glass panes with the gaskets about them, and clamping bolts for drawing the plates toward one another to squeeze the gaskets, the plates of one set having shelves forming flanges which engage the exposed faces of the webs of the channel shaped gaskets to hold the gaskets onto the glass, the other plates having recesses into which the flanges may enter without contacting, whereby thermal conduction is reduced, the free edges of the movable plates bearing on the frame members.

1,985,910. AIR CONDITIONING APPARATUS. Samuel M. Anderson, Sharon, Mass., assignor to B. F. Sturtevant Co., Inc., Boston, Mass. Application Sept. 7, 1934. Serial No. 743,050. 4 Claims. (Cl. 257-7.)

1. Air-conditioning apparatus for a passenger vehicle, comprising an air conditioning compartment having an air inlet



1,985,910

and a spray cooler, means for circulating a cooling medium to said compartment to be sprayed therein, an air filter in said compartment between the air inlet thereof and said cooler, means for passing air to said compartment and for discharging it into the passenger space of said vehicle, means for removing and replacing said filter through the floor of said compartment, and means for rendering said last mentioned means moisture-proof when said filter is in place.

1,985,931. REFRIGERATING APPARATUS. Andrew A. Kucher, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a corporation of Delaware. Application March 16, 1932. Serial No. 599,238. 18 Claims. (Cl. 62-126.)

6. A refrigerant pressure reducing device comprising superimposed sheet metal members having a plurality of continuously interconnected passages of substantially capillary size formed thereby and extending therebetween.

1,985,950. ENAMELED CONDENSER. Marc Resek and Theodore B. Focke, Cleveland Heights, Ohio, assignors to Perfection Stove Company, Cleveland, Ohio, a corporation of Ohio. Application March 7, 1932. Serial No. 597,210. 18 Claims. (Cl. 257-229.)

1. A condenser of the character described comprising an enamel coated tank having an opening in one of its walls, the portion of the wall about said opening being devoid of enamel, an enamel coated circulating unit within the tank having a portion extending through said opening, said portion being devoid of enamel, a fused fluid-tight joint between said portion of the circulating unit and the portion of the tank surrounding said opening, and material covering said joint that is impervious to the cooling liquid intended to be placed within the tank.

1,986,025. TUBE FLARING TOOL. Henry D. Stecher, Lakewood, Ohio, assignor to The Weatherhead Co., Cleveland, Ohio, a corporation of Ohio. Application Nov. 23, 1933. Serial No. 699,369. 10 Claims. (Cl. 153-79.)

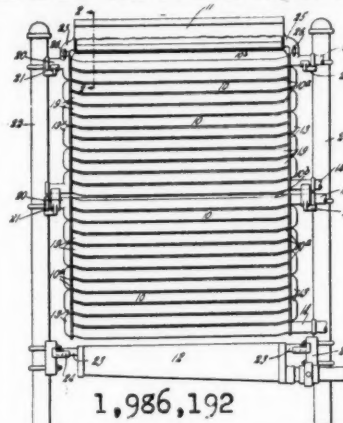
1. A flaring tool comprising a two part die having a series of recesses adapted to receive metallic tubes of varying sizes, means for clamping the two parts of said die together firmly to clamp a tube in any one of said recesses, a punch adapted to flare the end of a tube so clamped, and a carriage adapted to support the punch in registration with a tube contained in any one of said openings, said carriage comprising an inner U-shaped member adapted to engage the upper surface of the die, an outer U-shaped member adapted to engage lateral surfaces of the die, said U-shaped members having aligned openings adapted to receive the punch, and means for urging said punch downwardly into engagement with the end of a tube carried in said die to insure proper alignment thereof when the carriage is held in position, comprising a spring surrounding said punch and engaging a shoulder thereon and compressed between said shoulder and one of said U-shaped members.

1,986,155. MERCHANDISING PACKAGE. William O. Mashburn, Jr., Cincinnati, Ohio. Application March 14, 1933. Serial No. 660,688. 6 Claims. (Cl. 62-91.5.)

5. In combination, a box for holding bottles disposed in a horizontal contacting position, insulated walls and a lining for the box, a lid for the box and means associated with the lid for securing the lid in place upon the box, a container for a freezing compound normally fixed relative to the lid interior, guide means upon which the container may be slid to disassociate the container from the lid, and spacing means supported by the lid and depending therefrom to a position below the container for freezing compound, for contacting the sides of bottles packed within the box to preclude shifting of said bottles and to space the bottles always from the freezing compound container.

1,986,192. HEAT EXCHANGER FOR FLUIDS. Harvey Feldmeier, Little Falls, N. Y., assignor to Cherry-Burrell Corp., Wilmington, Del., a corporation of Delaware. Application Nov. 4, 1933. Serial No. 696,658. 10 Claims. (Cl. 257-183.)

3. A surface heat exchanger for fluids comprising a tube arranged for a liquid film to flow over its outer surface trans-



1,986,192

versely to the lengths of the tube for heat exchange with a medium within the tube, said tube having a horizontal portion and upwardly offset portions at opposite ends of said horizontal portion.

1,986,249. REFRIGERATING MACHINE WITH AUTOMATIC FLOAT AND TEMPERATURE CONTROL. Leon Buehler, Jr., Waynesboro, Pa., assignor to Frick Co., Waynesboro, Pa., a corporation of Pennsylvania. Application Nov. 19, 1931. Serial No. 576,171. 2 Claims. (Cl. 62-2.)

1. A refrigerating system having a plurality of evaporators, a suction trap, a float chamber, means for maintaining the liquid at the same level in the float chamber as in the suction trap, and a valve outside of the float chamber and controlled by the level of the liquid in the float chamber for controlling the level of refrigerant in the suction trap, each of the evaporators having electrically operated outlet valves which are controlled in response to changes in the temperature of the chamber in which the evaporator is located, substantially as set forth.

1,986,263. PACKAGE. Ross A. Hatch, Chelmsford, Mass. Application Oct. 25, 1932. Serial No. 639,425. 14 Claims. (Cl. 62-91.5.)

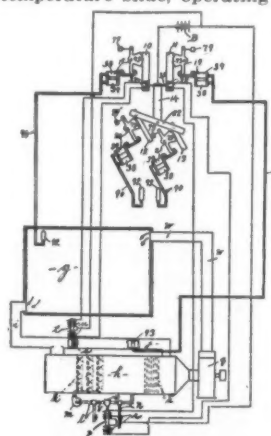
7. Means for packaging a container for refrigeration comprising a unitary one-piece blank having a centrally disposed bottom portion, substantially upright inner and outer side and end wall portions integral with said bottom portion and arranged to form a compartment for material to be refrigerated, means providing interfittng connections between these side and end wall portions for securing these parts in this relationship, and means integral with said blank for maintaining said side and said end walls spaced from adjacent walls of an outer carton.

1,986,299. SAFETY VALVE FOR COMPRESSORS. George Steven, Buffalo, N. Y., assignor to Worthington Pump & Machinery Corp., New York, N. Y., a corporation of Virginia. Application April 12, 1934. Serial No. 720,200. 6 Claims. (Cl. 230-22.)

1. In a compressor, the combination with a manifold for the compressor having suction and discharge passages communicating respectively with the suction and discharge ports of the compressor, of a by-pass valve in said manifold between the suction and discharge passages, a safety relief valve carried by said by-pass valve, and yieldable means for holding said safety relief valve seated, whereby when the pressure in the discharge passage of the manifold reaches a predetermined degree the safety valve will be forced off its seat to permit by-passing of a part of the fluid compressed.

1,986,316. METHOD AND APPARATUS FOR AUTOMATICALLY CONTROLLING THE OPERATION OF AIR CONDITIONING SYSTEMS. Albert E. Beals, Norwich, N. Y. Application Sept. 14, 1931. Serial No. 562,817. 29 Claims. (Cl. 236-44.)

1. A control instrument for air conditioning systems comprising an outside effective temperature slide, operating means



1,986,316

connected with the slide for moving said slide in accordance with the effective temperature curve of the outside air, and means co-acting with the slide and actuated by the dry and wet bulb temperatures of the inside air adapted to automatically control the operation of an air conditioning system for maintaining the inside effective temperature at a predetermined relation to the outside effective temperature.

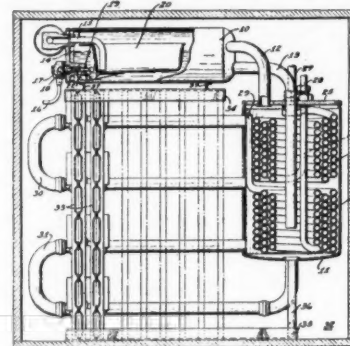
1,986,376. EVAPORATOR VALVE MECHANISM. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y., a corporation of New York. Application Jan. 9, 1930. Serial No. 419,721. 1 Claim. (Cl. 137-68.)

In an evaporator for refrigerating systems, a vessel for containing liquid refrigerant having a sealed end wall with an opening therethrough, a withdrawable body extending through the opening in

the wall of the vessel, said body having a refrigerant inlet passage extending therethrough, a float in the vessel having a reduced bracket portion pivoted to the inner end of the body and partially removable therewith through the wall opening to a position exterior of the vessel permitting detachment of the body therefrom, and valve means detachably associated with the reduced bracket portion of the float and the body for controlling refrigerant flow through the body, and a single detachable means for fixing the body in leak-proof relation with the vessel wall.

1,986,377. HEAT EXCHANGE APPARATUS. Franklin G. Slagel, Buffalo, N. Y., assignor to Fedders Mfg. Co., Inc., Buffalo, N. Y., a corporation of New York. Application May 15, 1931. Serial No. 537,725. 2 Claims. (Cl. 62-141.)

1. In a mechanical refrigerating apparatus, a header of the flooded type, a vessel at one end of the header in a



1,986,377

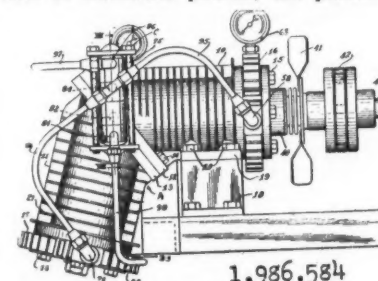
plane therebelow, a fluid dispensing coil enclosed in the vessel and having inlet and output portions extending through the vessel, a refrigerant outlet conduit between the top of the vessel and the top portion of the header, and a refrigerant conduit between the lower portion of the header and the lower inner portion of the vessel, said vessel being substantially filled with liquid refrigerant.

1,986,379. REFRIGERATING DEVICE. Lawrence C. Smith, Kenmore, N. Y. Application Aug. 30, 1933. Serial No. 687,416. 6 Claims. (Cl. 62-95.)

2. A cooling device comprising a plurality of vertically disposed spaced partition members, said members being each similarly formed with a plurality of rows of apertures, a plurality of tubes each extending horizontally through the partition members through the aligned apertures thereof and secured thereto to form therewith a plurality of horizontal cells, said cells being proportioned to receive containers therein in intimate thermal relation, and means connecting the tubes to form a continuous refrigerant passage.

1,986,584. REFRIGERANT PUMPING SYSTEM. Solomon E. Koplar, Chicago, Ill. Application Sept. 29, 1932. Serial No. 635,355. 11 Claims. (Cl. 230-207.)

1. A refrigerant pumping system comprising an angular rotary pump having sets of connected pistons, the pistons of



1,986,584

each set being disposed at an angle to each other, housing means including angular legs to define cylinders for the pistons and a chamber at the junction of the legs in communication with the cylinders and pistons, a connection to supply oil to said chamber, whereby the pump parts are lubricated, an outlet from the pump sections, means connected to said outlet for separating the refrigerant and oil taken up by the refrigerant in its passage through the pump sections, the separated oil being subjected to the pressure of the refrigerant, and a connection from said means to the oil supply connection to conduct the separated oil back to said chamber.

1,986,638. ABSORPTION REFRIGERATING APPARATUS. Donald Branch Knight, Brooklyn, N. Y., assignor to Electrolux Serval Corp., New York, N. Y., a corporation of Delaware. Application June 28, 1932. Serial No. 619,620. 23 Claims. (Cl. 62-119.5.)

22. In the method of refrigeration by circulation of a cooling fluid through a cycle of evaporation at a low temperature and condensation at a higher temperature, removing heat of condensation by transfer to a second cooling fluid, and intermittently raising said low temperature with continuing circulation of said first cooling fluid by intermittently decreasing heat transfer to said second cooling fluid.

REISSUE

19,409. FREEZING TRAY. Harrison C. Berkeley, Dayton, Ohio, assignor, by mesne assignments, to General Motors Corp., Detroit, Mich., a corporation of Delaware. Original No. 1,931,053, dated Oct. 17, 1933. Serial No. 582,349. Dec. 21, 1931. Application for reissue April 30, 1934. Serial No. 723,280. 11 Claims. (Cl. 62-108.5.)

6. A freezing device having an open-top water tray having peripheral side walls, partitioning means for dividing the space within said tray into ice block compartments, a flexible metal cover for said tray resting by gravity with a sealed fit upon the upper edges of said peripheral side walls when the tray is in upright position, the assembly of the filled tray and cover being adapted to be inverted and maintained indefinitely in inverted position within a freezing chamber without leakage, leakage being substantially prevented by a water seal at the loose joint between said tray and cover.

